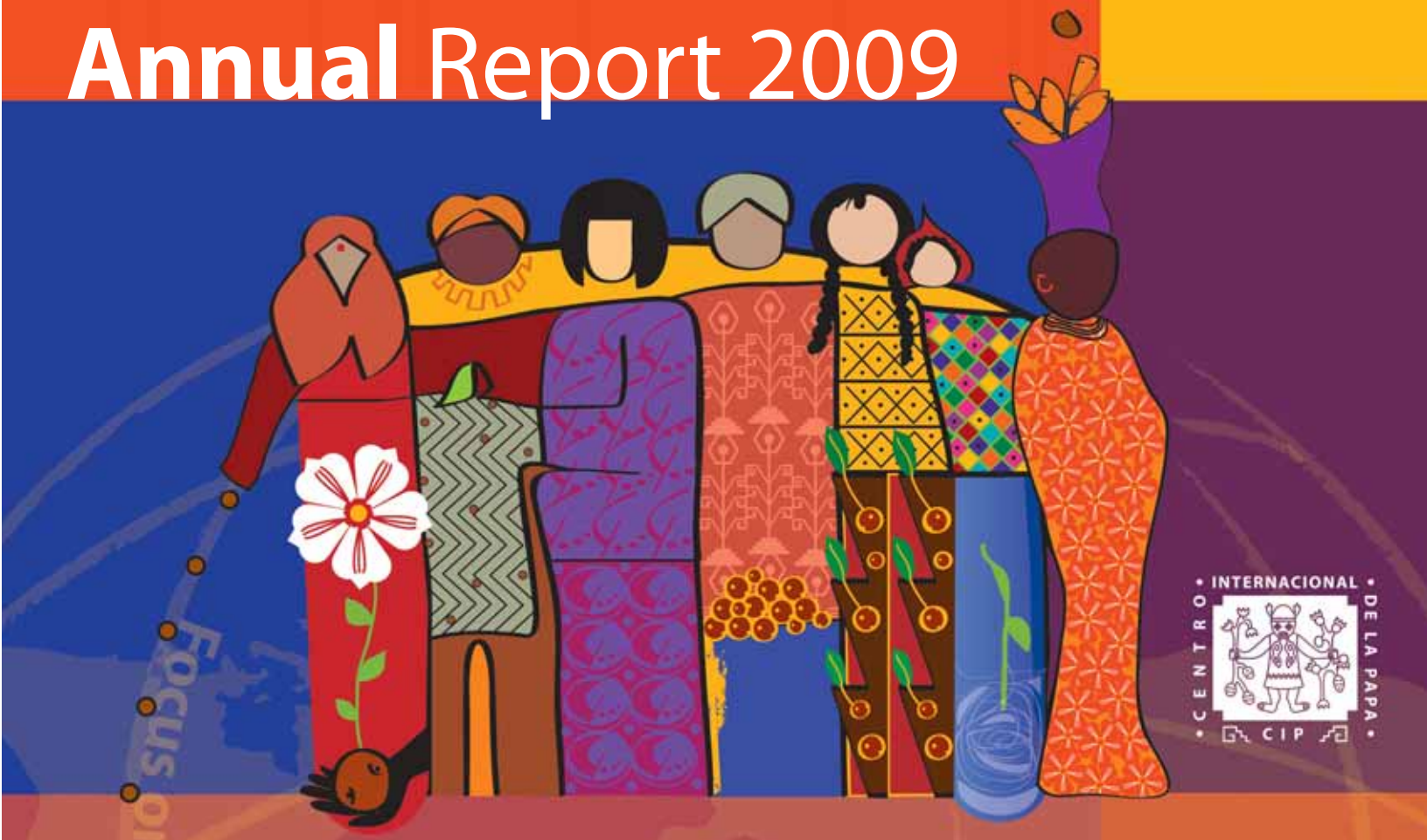
Annual Report 2009



CENTRO INTERNACIONAL DE LA PAPA
CIP

Focus on Partnerships:

Enriching the science,
expanding the reach,
enhancing the impact

Focus on partnerships:

International Potato Center

The International Potato Center (known by its Spanish acronym CIP) is a research-for-development organization with a focus on potato, sweetpotato, and Andean roots and tubers. CIP is dedicated to delivering sustainable science-based solutions to the pressing world issues of hunger, poverty, gender equity, climate change and the preservation of our Earth's fragile biodiversity and natural resources.

Our vision is roots and tubers improving the lives of the poor. Our mission is to work with partners to achieve food security, well-being, and gender equity for poor people in root and tuber farming and food systems in the developing world. We do this through research and innovation in science, technology, and capacity strengthening.

Contents

From the board chair

From left to right: Dr. Song Jian, China, Dr. Stella Williams, Nigeria, Dr. Peter VanderZaag, Canada, Dr. Pamela K. Anderson, Dr. Ruth Egger, Switzerland, Mr. Edward Sayegh, Lebanon, Dr. Jose Valle-Riestra, Peru, Dr. S. Edison, India, Dr. Simon Best, UK, Dr. Pauline Kuzwayo, South Africa.

CIP ARCHIVES

It is my pleasure to introduce the 2009 Annual Report of the International Potato Center (CIP). 2009 was a record-setting year for CIP. Our budget grew by 22 percent to 34 million dollars: the highest level of funding CIP has ever received in one year! During a deep recession, our donors asked CIP to do more of what we do best: generate research-for-development outputs and outcomes to enhance impacts and livelihoods for poor farmers in potato- and sweetpotato-based systems.

CIP is a not-for-profit organization; therefore, as the Board, we have a great responsibility to be good stewards of the funds we receive. At CIP, we do this through our Audit and Risk Management Committee with support of the CGIAR Audit unit and our external auditors.

Edward Sayegh served us well as the Chair of the Audit Committee. Ed's thorough, competent, and diligent work has been an asset to CIP's Board. Thank you, Ed, for your faithful service.

The CGIAR Reform process was officially endorsed by the CGIAR membership at AGM09 in December. With the new Consortium Board representing the 15 Centers and the Fund Council representing the donors, we anticipate a more dynamic and effective approach to accomplishing our mission. The Strategy and Results Framework will be finalized in 2010, and it will be the blueprint by which we all operate. This will give CIP even more opportunity to fulfill its mandate.

We look forward to exciting times for CIP. As a Board, we must do all we can to work towards the alleviation of hunger and malnourishment for the approximately one billion people on our planet. Potatoes and sweetpotatoes play a significant role in accomplishing that task. I would like to thank Dr. Song Jian, who completed his 6-year term on CIP's Board. Dr. Song's wise counsel and support has been critical to the successful establishment of the CIP-China Center for Asia and the Pacific. Finally, I would like to acknowledge the work of Ruth Egger (my predecessor as Board Chair) for her lifetime of dedication to rural development and for her dedicated service to the CIP Board.

Peter Vander Zaag
Board Chair

Foreword director general

The International Potato Center has a rich and successful history of creating, coordinating, and working in partnerships. Part of the founding philosophy of CIP was to create and maintain close contact with partners and stakeholders.

CIP engages partners from public and private advanced research institutions, universities, national agricultural and extension systems, international and non-governmental organizations, civil society, and farmer-based organizations. For the 2005 Science Council "mobilizing science" exercise, CIP reported more than 700 formal partnerships.

As CIP has evolved, so have our partnerships and partnership strategies. CIP's social scientists have made partnership a subject of research. In 2009, we published Perspectives on Partnership: A Literature Review. And, we have continued to experiment with and publish on new forms of partnerships for pro-poor innovation in market chains. After 18 years of hosting CONDESAN, in 2009 we helped this CGIAR EcoRegional Program take the step to become an independent NGO.

As our partner countries have developed greater institutional capacity, the forms of our partnership have shifted, particularly with the emerging (BRIC) economies. Our partnerships in Brazil (EMBRAPA), India (ICAR), and China (CAAS) are now those of advanced research partners.

CIP Director General, Pamela K. Anderson and Chinese Minister of Agriculture, Han Changfu, sign the official agreement between China and CIP to establish the CIP-China Center for Asia and the Pacific (CCCAP).

In 2009 we were particularly proud to finalize our discussions with the Government of China – resulting in the February 4, 2010 signing of the legal framework to establish the CIP-China Center for Asia and the Pacific (CCCAP), a new platform to enhance our research-for-development impact in Asia and the Pacific.

I am delighted to share with you the CIP 2009 Annual Report and a sampling of the projects and results reflecting CIP's rich and varied partnerships.

Pamela K. Anderson
Director General

Introduction

Focusing on partnerships

Over the past twenty years the mission of agricultural research-for-development organizations has evolved from increasing crop productivity to the more complex challenges of hunger and poverty alleviation with sustainable development. The research has expanded to include issues such as climate change, preserving biodiversity, food security, and improving livelihoods. Accordingly, the nature of partnerships has broadened from traditional R&D networks to include non-traditional partners such as non-governmental organizations, producers groups, private firms, policy-decision makers, and local communities.

CIP has conducted an extensive review of the vast but scattered partnership literature, published as a working paper in 2009 titled **Perspectives on Partnerships.** The purpose of the study was to glean lessons from the research to better understand the dynamics of partnerships and improve their effectiveness.

"Working in partnership has become central to the modus operandi of international agricultural research-for-development organizations", explains Douglas Horton, co-author of the review, "but the nuggets of wisdom from useful work on the topic are often buried deeply within specialized literature that is either unknown or inaccessible to most of the people who could use it."

One of the key gaps identified in the study is the lack of a shared definition for what constitutes a partnership in agricultural research for development. Therefore the authors propose a common definition (see text box) based on a review of the literature, which can help distinguish partnerships from other forms of collaborations and offer a way to help measure and assess them more effectively.

In the context of international agricultural research for development, partnership is defined as a sustained, multi-organizational relationship with mutually agreed objectives and an exchange or sharing of resources or knowledge for the purpose of generating research outputs (new knowledge or technology) or fostering innovation (use of new ideas or technology) for practical ends.

According to the study, successful partnerships tend to share common factors include:

- A common vision and purpose
- Realistically defined goals
- Legitimacy and support for the partnership by parent organizations
- Equitable sharing of resources, responsibilities, and benefits
- Transparent governance and decision-making
- The continual creation of trust
- Learning and capacity development components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The literature review also reveals important drivers that influence the functioning and effectiveness of partnerships. Examples of positive drivers include the desire to achieve goals that cannot be achieved alone, the need to link research to action, and the desire to create new knowledge or policy changes. In contrast, negative drivers include slow progress, transaction costs (real or perceived), the view that gains come with too much pain, a sense of lacking adequate knowledge to affect change, or having the partnership imposed by a donor as a precondition for funding.

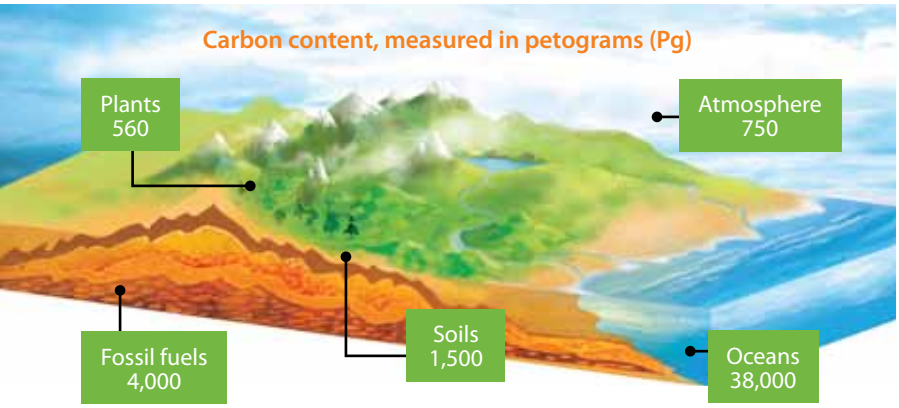
One of the important conclusions of Perspectives on Partnerships is the need for more systematic empirical research on partnerships. The literature review reveals that most of the partnership research is based on secondary data, questionnaires, and personal impressions rather than on grounded case studies or evaluations. "Many organizations are engaged in partnerships, based on the shared belief that it is the right thing to do, but without valid evidence to guide them on what works or not, and why," notes co-author Gordon Prain. "Promising evaluation approaches exist," he adds, "but they must be applied and tested to develop better informed theory and research-driven recommendations."

CIP works with hundreds of partners worldwide to address development challenges, boost capacity development, generate research knowledge, promote innovation, and stimulate positive impacts. The 2009 annual report focuses on a selection of those partnerships – and on the ways in which they are helping to ensure that CIP is engaged in enriching the science, expanding the reach, and enhancing the impact of its research for development agenda.

Enriching the science

Measuring soil carbon as a tool for mitigating climate change

Collaborative work between CIP and the Brazilian Agricultural Research Corporation (EMBRAPA) illustrates the potential of an innovation-based relationship that brings together partners to develop new tools and technologies that translate scientific advances into practical application; in this case, to address climate change mitigation.



Soil use	Carbon stocks (Tons/ha^{-1})
Wet grasslands – high plateau	301.7
Peat lands – high plateau	228.9
Alfalfa (under irrigation)	91.9
Shaded coffee (Amazon)	91.3
Primary rainforest	75.2
Avocado (intercropping)	68.2
Grape	65.2
Potato	55.6
Maize	42.4
Olive	38.1

Soil represents one of the most important storage houses for carbon on earth. It contains more carbon than plants and the earth's atmosphere combined (see figure). However, the importance of soil as a storehouse for carbon has been historically under-recognized in global accords and policy debates regarding climate change, as has the role of agriculture in accelerating or mitigating carbon emissions from the soil. These omissions have been largely due to difficulties measuring the levels and stability of carbon in the soil. Until recently, such measurements were only possible within a laboratory, using sophisticated and expensive equipment.

But now, scientists at CIP and EMBRAPA have worked together to apply and validate a new method for measuring soil carbon, using a system that is portable, affordable, and reliable. It uses a new device, developed by EMBRAPA-Agricultural Instrumentation, which employs laser-induced optical techniques to measure the carbon levels and their stability in soil samples. The device is so light and convenient that it can be used directly in the field.

Scientists from CIP and EMBRAPA established a 1,000 km transect from the Pacific ocean over the Andes to the jungle in Southern Peru, and tested soil carbon levels using the device in a variety of agricultural and land use systems in southern Peru. The samples represented the most common agroecosystems found in tropical areas worldwide. The results showed wide variations in the levels and stability of carbon stored in the soil depending on factors such as land use, crops grown, water content, elevation, and agricultural practices. (see table) For example, wet grasslands and peatlands from highland plateaus contained 4 times the amount of carbon found in primary rainforest soil, the common standard against which levels are compared. In contrast, areas planted with potato, maize, or olive trees held only half to three-quarters of the amount of content stored in rainforest soil. There are also important differences in the chemical structure stability of the carbon found in different soils; less stable carbon is more common in the samples found in the high-altitude grassy plateaus and is more likely to escape into the atmosphere if the soil is disturbed.

The implications for carbon emissions are great. Undisturbed soil is a natural carbon sink. However, activities such as plowing release carbon from the soil into the atmosphere as carbon dioxide (CO_2), a major greenhouse gas. "So, if a farmer transforms a high-altitude grassland into cropland, for example," explains CIP's Roberto Quiroz, who was one of the principal investigator for the study, "there will be a net loss in the amount of carbon retained in the soil and an increase in the amount of CO_2 escaping into the atmosphere."

In fact, in tropical mountain regions, such as the Andes, poor farmers already are planting their crops further up the mountain and converting grassland to cropland, because warming trends due to climate change are increasing the threat of crop pests and disease at lower altitudes.

"We have the tools and means to help mitigate these effects, and to transform an environmental risk into an opportunity for retaining soil carbon while improving the livelihoods of poor farmers," says Quiroz.

CIP scientists and partners are working on three such strategies:

1. Developing more stress-resistant crops, so that farmers can continue to grow them in existing fields at lower elevations
2. Using crop management techniques (e.g., mulching, water management) and diversified farming systems that balance soil carbon losses with methods to capture and retain soil carbon
3. Implementing financial incentives and other techniques that reward farmers for improved stewardship of natural carbon sinks and soils

"We are trying to not only climate-proof crops, but also climate proof agricultural systems," concludes Quiroz. In addition, CIP and EMBRAPA are continuing to test and streamline their portable device so that it can be adapted more easily and for broader use.

The utility of the device and of CIP's soil carbon emission reduction strategies is further underscored by the fact that agriculture accounts for 31% of total carbon emissions. Yet, fully 88% of those could be reduced – including 74% in developing countries. CIP scientists and their partners believe that agriculture should not continue to be just part of the problem of carbon emissions and climate change. It must also be part of the solution.

Sequencing the potato genome

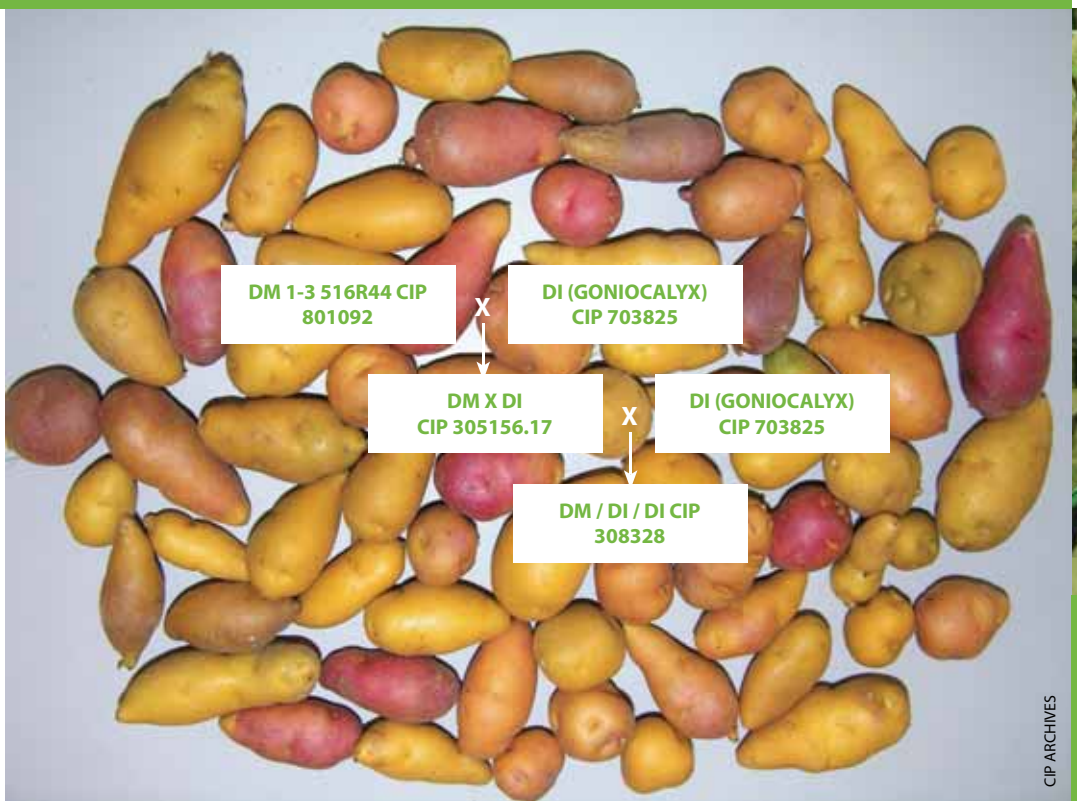
This global, public-private partnership has greatly advanced potato science through a truly collaborative process of shared research. Remarkably, the effort included the recognition of a need to change strategies mid-course to take advantage of new advances and technologies.

In September 2009, the Potato Genome Sequencing Consortium (PGSC), an international group of scientists including researchers from CIP released the first draft sequence of the potato genome. Access to the potato genome offers a way to read the genetic barcode to identify offspring with desirable characteristics and useful properties. Decoding the potato genome will tell how a potato grows and reproduces, and can assist potato scientists in improving yields, quality, nutritional value, and disease resistance of potato varieties. The potato genome sequence holds the promise of significantly reducing the 10–12 years currently needed to breed new varieties and identify useful genes which can be introduced directly into potato varieties lacking this trait.

The joint contribution to this effort by CIP and colleagues at the Chinese Academy of Agricultural Sciences (CAAS) was decisive, because it greatly reduced the time and cost needed to complete the draft sequence. The PGSC was initiated by Wageningen University in the Netherlands. It is composed of scientists and research institutions in Argentina, Brasil, Chile, China, India, Ireland, New Zealand, Peru, Poland, Russia, the United Kingdom, and the United States.

The task of sequencing the genome was enormous, as potato is genetically far more complex and heterozygous than other staples, such as rice or wheat. The potato genome has 12 chromosomes and is estimated to have a length of 840 million base pairs. The genome sequence project initially followed the same strategy as used for the Human Genome Project. The genome for a research strain of the cultivated potato *Solanum tuberosum* (RH89-039-16) was broken up into about 100,000 pieces. Each chromosome was to be sequenced separately by one of the research partners and then pieced back together. However, the problem of heterozygocity, or high variation of heritable factors on each chromosome, seriously hindered the progress of PGSC.

In 2008, CIP and colleagues at CAAS began to focus on a new potato genetic material called DM 1-3 516R44 developed at Virginia Tech University in the US, which they expected would simplify assembly of the genome sequence. CIP scientists developed a DM-derived cross to support the final assembly. The new DM material was suitable



CIP ARCHIVES

CIP developed the potato material that can be used for a simpler and faster sequencing method.

for a method called shotgun sequencing, which dramatically simplified the sequencing and alignment processes. CIP contributed to the design of the alternative sequencing strategy, which was applied by CAAS using next-generation technology and combined with computer advances developed by the Beijing Genomics Institute.

Potato is one of the largest plant genomes to be sequenced using this groundbreaking technical approach. CIP and its Chinese colleagues are building on this accomplishment by using the sequence to understand how potato responds to disease and other stresses and to conduct other sequencing studies.

This draft genome assembly is available in the public domain at www.potatogenome.net. It will be continually updated to reflect new data and potential corrections.

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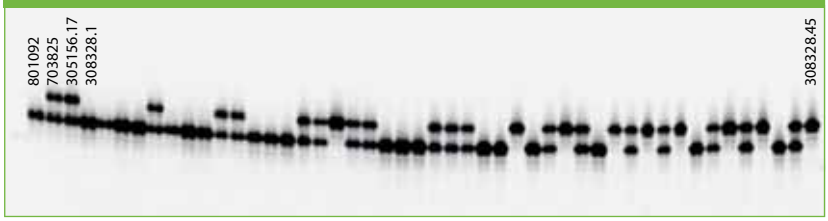

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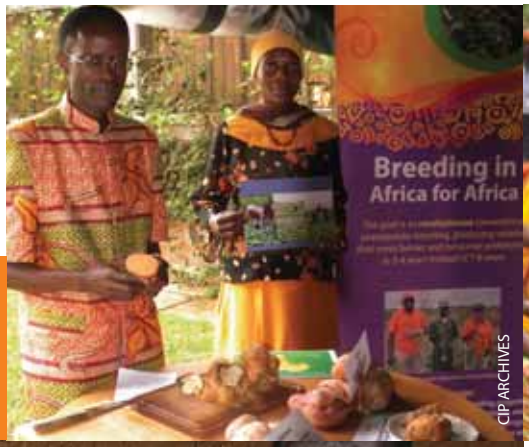
Expanding the reach

Sweetening lives in Sub-Saharan Africa: Sweetpotato for profit and health initiative

Building a strong partnership base was a fundamental aspect of the unique and exemplary pre-program planning process for one of CIP's most ambitious projects to date, focused on unleashing the full potential of sweetpotato for improving lives in Sub-Saharan Africa (SSA).



CIP ARCHIVES


CIP ARCHIVES

SPHI aims to improve lives in 10 million households in 10 years.


S.TUMWEGAMIRE

In October 2009, CIP officially launched the Sweetpotato for Profit and Health Initiative (SPHI) in Namulonge, Uganda. SPHI is a 10-year, multi-donor initiative that seeks to reduce child malnutrition and improve smallholder incomes through the effective production and expanded use of sweetpotato in SSA.

SPHI is expected to improve lives in 10 million households in 10 years and to bring an annual

value of $241 million in additional production in 17 SSA countries. The vast majority of beneficiaries will be non-commercially oriented producers, mostly women and their families.

Sweetpotato is the third most important food crop in East Africa and the fourth most important in Southern Africa. SPHI aims to build consumer awareness of sweetpotato's nutritional benefits, diversify its use, and increase market opportunities, especially in growing urban markets. The initiative's emphasis on expanded use of orange-flesh sweetpotato (OFSP) is intended to significantly reduce vitamin A deficiency, which affects 50 million children under age 5 in SSA, raising risk of blindness, disease, and premature death.

The design of SPHI was developed through an innovative participatory planning process that took place over a 10-month period (May 2008-February 2009) with support from a planning grant from the Bill & Melinda Gates Foundation. The grant gave planners the opportunity to build a dynamic and sustainable network base of partners, which was a critical first step for developing the type of wide-scale initiative envisioned. It represented a new, major investment in program planning; one that should serve as a model for donors and program planning in agricultural research for development.

The planning process for SPHI was extensive. It included 10 in-country visits by multi-disciplinary teams of CIP scientists and partners; an extensive review of the science, published as 8 Challenge Theme and background papers; outreach to 300 potential partners through a questionnaire soliciting interest and input; an expert Challenge Workshop; and four topic-specific workshops. These activities culminated in the development of not only the broad 10-year SPHI initiative but also a concrete five-year project (known as the Sweetpotato Action for Security and Health Project or SASHA).

The Bill & Melinda Gates Foundation has provided major support for Phase I of SPHI, through the SASHA project. The SASHA phase I of SPHI has a heavy emphasis on building an integrated sweetpotato breeding system to significantly boost yields. It addresses the binding constraints (e.g., access to planting material, view of sweetpotato as food for the poor) that inhibit the ability to exploit the full potential of sweetpotato and to improve the lives of women – the primary producers of sweetpotato in SSA – and young children. The SASHA project includes 26 partner organizations working in collaboration with CIP to meet its targets.

"We are working with local scientists, partners, and stakeholders and in close collaboration with the Alliance for a Green Revolution to ensure that we strengthen the capacity to engage in sweetpotato breeding in Africa for Africa," explains Dr. Jan Low, who leads the project from CIP's Regional Office in Nairobi, Kenya.

Other components seek to build the empirical evidence to show the profitability of using sweetpotato for processed products and as animal feed. They are testing ways to cost-effectively disseminate clean planting material to farmers. Another component is linking the promotion of orange-fleshed sweetpotato to public health services for pregnant women to help combat vitamin A deficiency. Phase II will focus on using the lessons learned in Phase I to take promising results and activities to scale so as to positively reduce poverty and undernutrition in millions of African households.

Linking farmers to potato value chains in Indonesia

Trust and mutuality are critical to the implementation of successful partnerships, but can be especially challenging when there is asymmetry among partners. CIP's application of its participatory market chain approach in Asia has highlighted the need to institute Farmer Business Schools that can train and empower small-scale farmers to be more active partners in new market value chains.

CIP's Participatory Market Chain The approach (PMCA) developed by the Papa Andina project, employs a well-structured process to stimulate collaboration and innovative ideas among potato farmers, suppliers, retailers, and other members of the market chain. Originally developed and applied in South America, CIP has taken the approach and adapted its application to value market chains in Africa and Asia.

In Indonesia, PMCA has been applied to take advantage of market opportunities for that country's growing potato industry, particularly in Central and West Java, the main potato-producing regions. The result has been the launch of a whole new range of products that reflect market demands and potential. For example, a large food processing company in Jakarta (Bali Muda) has partnered with potato farmers and processors in West Java to produce keripik putih (white potato chips). The chips were launched in mid-2009 and are sold in several supermarkets throughout Jakarta. The company is also contacting farmers and processing industry representatives in other towns in West and Central Java to expand this and other related business initiatives. Project participants also have forged partnerships with chefs affiliated with the Indonesia Chef Association Bandung in order to create innovative potato-based dishes. Other new products include jumbo-sized potatoes (~200 grams); baby potatoes (~75 grams); pesticide-free potatoes, unpeeled potato chips, and potato bread.

Early in the implementation of PMCA in Indonesia, however, it became apparent that smallholder farmers did not have the knowledge, skills, or experience needed to give them equal footing with other market chain players. In response, CIP created a Farmer Business School designed to boost their bargaining power. "We had to adapt the PMCA model to the local context," explains Dindo Campilan, CIP's Regional Leader for South, West, and Central Asia. "The challenge wasn't to develop a market for local potatoes, because that market exists already. It was to give farmers training and credibility, which is why calling the program a business school was important, too."

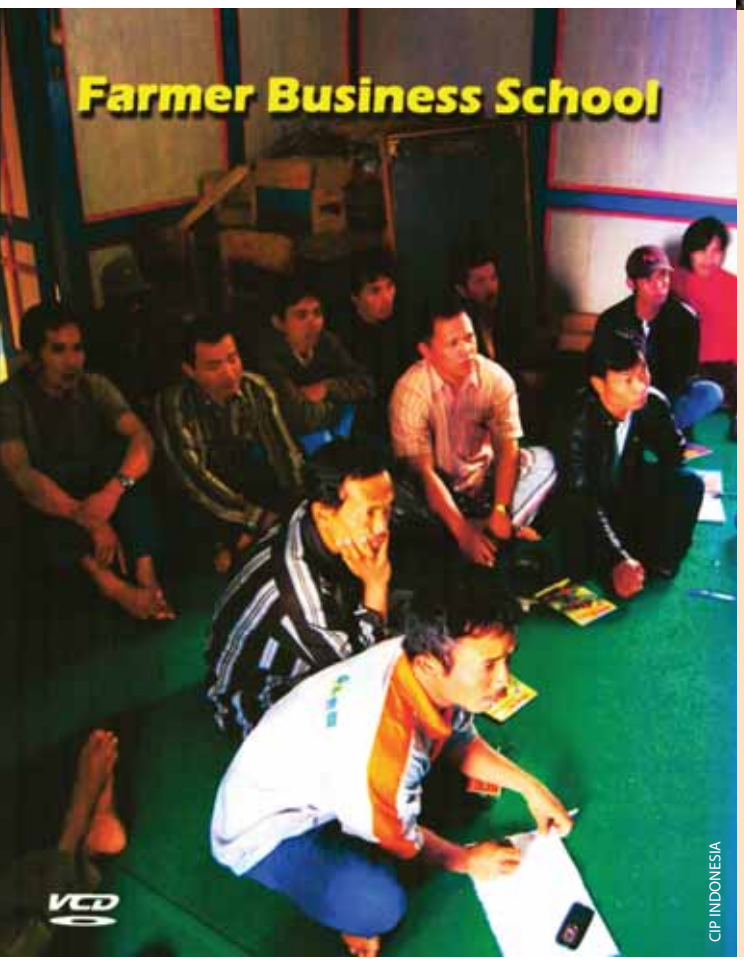
The Farmer Business School approach helps enhance farmer capacity to participate in and

benefit from agricultural market chains. It builds on the group-based experiential learning mode of Farmer Field Schools, while shifting from a production– to a marketing-oriented curricular framework. Elements of training include such activities as conducting market assessment SWOT (strengths, weaknesses, opportunities, threats) analysis, identifying and launching new products and packaging, analyzing profit margins, and preparing a business plan.

Participants meet with market chain stakeholders, such as traders and supermarket industry representatives, during the course of the program. With much more honed business skills, they "graduate" from the Farmer Business School with a new product (or products), a business plan, and experience implementing their business plan.


CIP INDONESIA

CIP's PMCA model in Asia is working to give small-scale farmers equal footing to be full players in potato value market chains.



CIP INDONESIA

CIP has released a 13-minute video on the **Farmer Business School** used in the potato marketing project in Indonesia. It is available for online viewing from the CIP website (http://www.cipotato.org/csd/materials/videos.asp).

Making seed big business in Kenya

Research suggests that agricultural research-for-development organizations use public/private partnerships to access technology from the private sector and more fully translate them into products with local relevance. CIP is engaged in an innovative public/private partnership in Kenya designed to take advantage of existing private industry capacity to strengthen the country's production and dissemination of clean and improved potato seed.

A new public-private partnership model in Kenya is offering promising results for the establishment of an efficient, sustainable seed system for potato that can boost the diffusion of new varieties and increase availability of disease-free seed stocks. The partnership brings together CIP, the Kenyan Plant Health Inspectorate Service (KEPHIS), and several private companies to create the capacity for large-scale production of clean planting material. In 2009, it resulted in increased production capacity of over 390,000 disease-free minitubers that can be used for seed.

The potential impact of this strategy is important, because Kenya (and other parts of Africa with cool weather) has two potato growing seasons each year, compared to other regions of the world which only have one. CIP has demonstrated that by using a small greenhouse space (100 m^2) it is possible to produce 2 cycles of quality potato seed, enough to plant 10 hectares in the field. However, because the fields are always green, the risk of pest infestation is high. This increases the need to ensure the availability of clean and more resistant planting material to take advantage of the potential for increasing potato yields and distributing material that is better adapted to local needs and preferences.

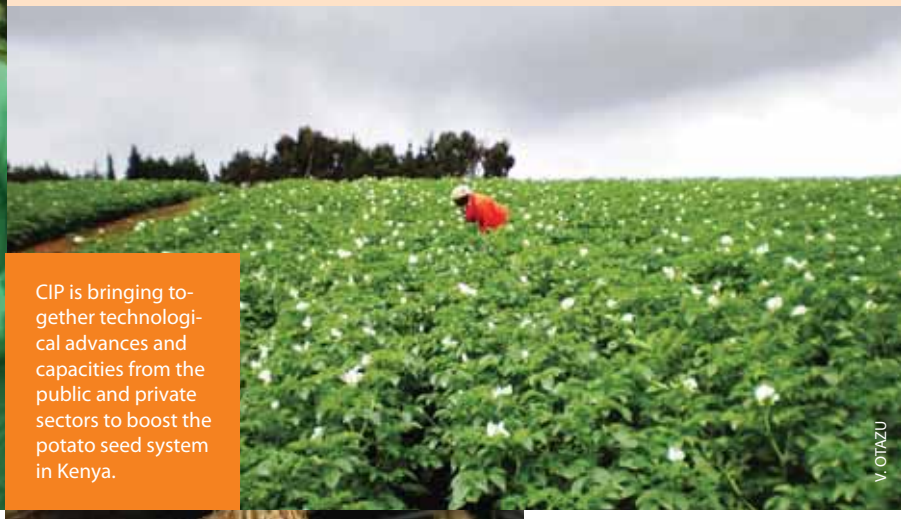
Most national potato programs in Sub-Saharan Africa, including those in Kenya, are overburdened and underfunded. In Kenya, the amount of clean seed they produce barely covers 1% of demand. Farmers rely instead on their own saved stock, or on informal production and trade for seed. This results in substandard, poor yielding seed that is often a carrier of pests and diseases, which are transferred from one generation to the next. It also makes it very difficult for CIP to introduce and ensure the dissemination of improved varieties through the potato seed system.

To respond to this challenge, CIP has reached out to the private sector to help develop a seed system that can take advantage of existing efficient, innovative, and rapid multiplication


V. OTAZU

What is potato "seed"?

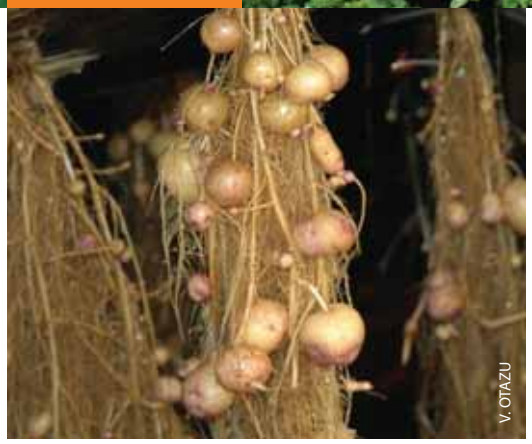
Because potato is vegetatively propagated, the term "seed" generally refers to the small potato or piece of potato, which, when planted, will develop into a plant that can produce from 5 to 20 new tubers. The new tubers will be genetically identical to the mother "seed" material. Potato plants also produce flowers and berries that contain around 200 botanical seeds, of which each is a new plant type. These are known as true seed. Potatoes bred from true seed have the look and quality of the parent plant, but are diverse in resistance and other traits.


V. OTAZU

CIP is bringing together technological advances and capacities from the public and private sectors to boost the potato seed system in Kenya.

technologies. CIP contacted, chose, and worked with several private companies to encourage them to respond to the unfulfilled demand for high quality potato seed.

The selected companies already had in place tissue culture facilities along with experience in the large-scale production of products such as flowers, fruit trees, other trees, and herbs. CIP supplied them with late-blight disease resistant breeding material from CIP-Lima in the form of in-vitro plants. CIP also offered technical support in the construction of quarantined screen houses for the production of minitubers. The minitubers are being produced using both the traditional soil-based method and the soil-less aeroponic system, which can produce more tubers, more quickly, and at lower cost than traditional methods. KEPHIS is a key public partner in ensuring the inspection and detection of potential pests or disease in the seed produced by the private companies.


V. OTAZU

From partners to proto-institution: The CONDESAN story

One of the key findings of CIP's literature review on partnerships is that inter-organizational partnerships are dynamic. They shift with time, often evolving from less to more formal arrangements as common purposes and interdependencies increase. Ultimately, a partnership may take on a life of its own as a spin-off entity that develops into new full-fledged organization. The story of the CIP-CONDESAN partnership is one such example.

The Consortium for the Sustainable Development of the Andean Ecoregion (CONDESAN) is a dynamic consortium of nearly 50 organizations actively working in the Andes of Venezuela, Colombia, Ecuador, Peru, Bolivia, and Argentina. Started in 1992, its mandate is to address the interrelated problems of rural poverty and natural resource management. The work is based on the premise that these issues require a multidisciplinary approach built on alliances with local and political stakeholders.

Hosted for 18 years by CIP, CONDESAN has worked with more than 100 institutions from 17 countries, ranging from nongovernmental organizations (NGOs), regional universities, producer groups, and municipal governments to national agricultural research systems, international research centers, CGIAR Centers, and UN agencies. It has pioneered research on biodiversity of Andean crops, pastures and animals, land and water management, agro forestry, rural development policies, and production systems.

Examples of projects include:

- Working to balance high-input potato production with sustainable development in Venezuela
- Managing the Florencia cloud-forest bioreserve and developing profitable alternatives in the buffer zone in Colombia
- Creating a sense of commonwealth and promoting rural prosperity along an irrigation canal in Ecuador
- Water management and increasing incomes through the marketing of local products in a new irrigation district in Peru.

CONDESAN also has spearheaded an electronic information exchange mechanism called InfoAndina to give farmers, municipal officials, development workers, and researchers access to reliable information. Using InfoAndina, consortium

members have established email connections, produced electronic newsletters, and launched web pages. It has more than 800 subscribers, and electronic forums hosted by InfoAndina often attract as many as 500 participants.

"Over time, CONDESAN has become a regional platform oriented to synthesis, policy dialogue, and the exchange of knowledge," explains Miguel Saravia, Executive Director of CONDESAN. Its reach and role also have expanded considerably, moving beyond its original boundaries as a partnership program. As a result, in 2009, CONDESAN began the process of shifting from a CIP partnership program to becoming an independent organization. The transition took place gradually over the course of a year, benefitting not only from CIP collaboration and support but also from a World Bank-funded coordination grant to help CONDESAN establish independent footing.

The move is a landmark, not only for CIP but also for the CGIAR, as it represents the first time that one of the Group's inter-organizational collaborations had led to the emergence of a new, autonomous institution. "Being independent, CONDESAN will be better able to mobilize additional resources and capabilities that strengthen its work and complement the research efforts of CIP and other CGIAR centers," says Saravia.


J. VOSS


S. LEON

As its reach and role expanded, CONDESAN has envolved from a partnership to a fully independent organization.


CONDESAN ARCHIVES

"CONDESAN's move to independence is truly a success story," concludes Pamela K. Anderson, CIP's Director General. "We are very proud of this evolution and hope it will serve as a model for other partnerships looking to institutionalize their growth and activities as new organizations."


Enhancing the impact

Working with partners to invest in women

Through its partnerships with NGOs, local organizations, and national government agencies, CIP is reaching out to women to more fully integrate their roles, contributions, and access to resources as critical elements of project planning, implementation, and expected impacts.

CIP continues to spearhead efforts to create and implement gender-sensitive strategies that invest in women—as decision-makers, caregivers, income earners, and agricultural producers. For example:

In Sub-Saharan Africa, the Sweetpotato Action for Security and Health in Africa (SASHA) program includes a major gender component aimed at improving lives for women. Women are the main producers of sweetpotato in Sub-Saharan Africa, but the extent of their control over the benefits from selling the crop varies in different social and economic settings. SASHA focuses on women as producers and guardians of family nutrition, with special attention to their needs and preferences. The project includes an African gender specialist and integrates strategies to ensure that women have a full voice in project interventions and gain equitably from them.

The SASHA project also includes "proof of concept" projects designed to evaluate specific strategies and interventions to see if they can be scaled up for wider and longer-term impacts, including gender-based strategies. For example, a proof of concept project in Rwanda is building public-private partnerships to develop a market chain for processed sweetpotato products, which can boost the value of sweetpotato crops and farmer incomes. The project emphasizes the inclusion of women as primary producers and processors.


S. TUMWEGAMIRE

In Bolivia, CIP-Papa Andina is working with PROINPA, SINARGEA, and the Bolivian Ministry of

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Women are key producers of roots & tubers, health decision-makers, and keepers of knowledge of their benefits.

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Rural Affairs to develop activities that promote women's participation in producers' associations, specifically those that aim to increase member's income through the use and promotion of the biodiversity of Andean roots and tubers. The project builds on women's traditional knowledge of the different uses, nutritional benefits, and medicinal properties of crops such as achira (*Canna edulis*) and arracacha (*Arracacia xanthrorriza*). That knowledge is combined with new information on additional uses of these products.

Results have been presented at several food fairs and other events to disseminate the knowledge to other communities. The project has contributed to raising the income of the whole family and to increasing women's social capital, including their self-esteem and increased recognition from other community members.

In India, CIP is working with the Directorate of Research on Women in Agriculture of the Indian Department of Agricultural Research and Education to reach out to women in poor farming and tribal communities in the state of Orissa to promote the nutritional and culinary benefits of orange-fleshed sweetpotato. This is part of a broader CIP effort in Orissa, which is India's leading producer and consumer of sweetpotato, to increase income generation, improve crop productivity, and implement a food-based strategy for addressing high rates of vitamin A deficiency. CIP and the Directorate are organizing outreach efforts, such as workshops and training focused on distribution of planting material to women, crop management techniques, and ways women can integrate darker-fleshed sweetpotato into traditional recipes.

In Ecuador, CIP-Papa Andina conducted a study with the National Program of Roots and Tubers of the National Institute of Agricultural Research of Ecuador to assess gender relationships in the production and commercialization of potato seed with small-scale farmers. The findings suggest that women contribute most of the time-consuming work of producing potato seed, but are not paid accordingly, and they are less likely than men to delegate potato production tasks and responsibilities. In addition, their contributions are not factored into production costs or the economy of the family, and women have less access than men to credit and training offered to members of the Consortium of Small-Scale Potato Producers. The study points to the need to increase women's access to credit and capacity development. It suggests the need for training and materials adapted to women and conducted in their native language.

Spearheading a global initiative to combat late blight disease

CIP is actively involved in a global partnership designed to harness scientific achievements of the past decade to minimize the devastating effects of late blight disease. One of its key activities has been providing donors and policymakers with information and the concrete actions that must be taken to translate those advances into real impacts.

In November 2009, CIP coordinated a meeting in Bellagio, Italy, uniting scientists from 21 developed and developing countries to plan a global strategy for combating late blight disease. The purpose of the Bellagio meeting was to promote open discussion, address key issues, and identify priority needs and opportunities. The result was a White Paper titled Late Blight: Action Plan for an Effective Response to a Global Threat. Directed at policymakers and donors, it presents five recommended actions for employing rapid solutions to the late blight problem, based on existing capacities and technologies. (text box)

Global coordination, using existing knowledge and technology, can mitigate the costs and human suffering from late blight.

Late blight is widely recognized as the single worst disease of food crops, particularly affecting potatoes and tomatoes. Caused by a fungus-like pathogen called *Phytophthora infestans*, it results in an estimated $10 billion worth of losses each year in potato crops alone. The impact on developing countries is especially harsh, as they are home to the majority of potato farmers, many of whom depend on potato for their economic survival and food security.

Recommendations from late blight action plan for an effective response to a global threat:

Action 1. Get resistant cultivars to farmers. Farmers are still largely using susceptible cultivars and dependent on fungicides. They need access to resistant cultivars adapted to local consumer demands and microclimates.
Action 2. Improve farmer disease management capacity. To mitigate and manage late blight in the field, farmers need participatory and intensive training, such as provided in farmer field schools. This requires the support and involvement of key stakeholders (e.g., farmers, national and international research and development organizations, donors, governments, and NGOs)
Action 3. Know the enemy and develop a community of skilled pathogen monitors. The pathogen causing late blight has a high capacity for changing through migration or mutation, calling for greater coordination and standardization at all levels to track disease trends, mutations, and predictions as well as trends associated with resistance duration and mitigation efforts.
Action 4. Develop ecologically-based approaches to control late blight. Use of host resistance is a primary approach, but should be enhanced with more research on complementary control practices, such as low toxicity pesticides and promising crop management techniques.
Action 5. Coordinate and monitor progress and risk assessment. There is a need for greater coordination among late blight researchers through networks and other modalities, along with tools such as long-term databases of hosts and pathogens to map and monitor progress in the use and durability of resistance or risk patterns associated with climate change.

Another insidious problem related to late blight is the health risk to farmers and their families as a result of chronic exposure to the pesticides employed to control the disease. The most common products used – dithiocarbamates, such as mancozeb – break down into suspected carcinogens.

Rising pressure from climate change is adding greater urgency to the problem. "With warming trends, which accelerate the spread of the disease, we are seeing increased risk in areas as diverse as the Andean highlands, the lake region of Sub-Saharan Africa, parts of Central Asia, and southwest China and Nepal, not to mention Northern Europe and the United States," notes Greg Forbes, a plant pathologist at CIP and organizer of the meeting. "However, the important message of the Bellagio meeting, adds Forbes, "is that the severe human suffering caused by late blight can be minimized with greater global coordination of the use of existing technology and knowledge."

The Bellagio participants focused on four critical areas: host susceptibility, pathogen aggressiveness, agro-ecosystem conduciveness, and field management practices. The group identified significant achievements in the last decade that could be implemented immediately to minimize the effects of late blight disease worldwide. They also highlighted the need for greater national and international coordination and for more funding to support continued research and advances in biology, social science, and communications.

Forbes concludes, "In the end, a global strategy will require financial support. For this, we need more input from national governments about the negative impacts of this disease, so that we can convince donors to put late blight on their policy agenda and to support a global research agenda on late blight."

New label adds value to native Andean potatoes and boosts livelihoods of those who grow them

CIP's Papa Andina project illustrates the use of partnerships to link research outputs with development impacts in sustainable ways. By promoting partnerships between private companies, producer organizations, researchers, NGOs, and other stakeholders Papa Andina helps develop innovations in agricultural production and value chains that can boost demand for native potatoes and improve the livelihoods of poor farmers.

In its ongoing effort to promote the pro-poor production and commercialization of native Andean potatoes, CIP's Papa Andina partnership program helped create and launch an Andean Potato label. The label represents a sort of seal of authenticity, designed to help consumers identify the native products that support smallholder potato farmers and the companies that work in a socially responsible manner.

There are more than 5,000 native potato varieties. They are rooted in the Andean culture and economy, and they provide work for approximately 1 million families, mostly in rural areas. The point of the label is to tap into the marketing potential of native Andean potatoes to improve farmers' livelihoods. Consumers appreciate these potatoes for their superior nutritional and cooking qualities, and for the natural and sustainable production methods used to grow them. As a result, they are willing to pay a premium for these products.

For companies, the label is a valuable marketing tool that helps communicate their efforts to establish transparent and responsible commercial relationships with their suppliers and helps differentiate their products in the marketplace. For farmers, the label represents an opportunity to strengthen their participation and competitiveness in a high-value market chain. It secures better prices for their potatoes compared with those they obtain in local markets and gives them access to new markets.

However, the benefits of responsible trade extend beyond the issue of added value and increased income. "You have to look beyond

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The benefits of responsible trade can be measured in impacts on poverty and well-being that not only include, but go beyond, poverty reduction.

income alone for measures of impact on poverty and well-being." explains Andre Devaux, who leads the Papa Andina project. "Other livelihood outcomes include increased self-esteem from the valorization of native potatoes and the maintenance of an important cultural asset," adds Alice Thomann, Associate Scientist with Papa Andina. "It provides an incentive to better use and promote biodiversity, and increases trust and positive relations between small-scale producers, buyers, and research organizations such as ours."

To obtain the Andean Potato label, companies must meet specified certification requirements regarding procurement standards. The standards include rules associated with pricing, delivery, payment, and quality controls. The goal is to set up a long-term, transparent, commercial relationship among all the actors along the native potato market chain in which everyone benefits.

The PEPSICO company has already been certified to use the Andean Potato label. Several other companies that process and sell products made from native potatoes have also applied to use the label.

CIP and China: Where impacts measure in the millions

CIP's work in China shows how a formerly North-South style of partnership –in which CIP was providing the research, technology, and training– can evolve to build on the increasingly robust national research community and resources of the recipient country partner (China).

Some of CIP's greatest impacts have been in China. The CIP-China collaboration reaches back to 1978, when CIP provided China with an initial disease and drought resistant potato, called CIP-24. It was very successful and continues to be grown today on 70,000 hectares, primarily in the country's drought-prone northern provinces.

In the time that CIP and China have been working together, potato production in China has nearly doubled. China is the largest global user of CIP germplasm and has become the world's biggest producer of both potato and sweetpotato; with yields equaling 75 million and 104 million tons per year, respectively.

New varieties from CIP, adapted to local needs and conditions, have helped to increase yields. For example, a CIP-developed potato variety called Tacna, introduced in the northern regions of China in 1994, provided yields more than 40% greater than those of the local variety due to its virus resistance and tolerance for heat, drought, and soil salinity. Renamed Jizhangshu 8, it is now planted in many regions of the country, where with proper crop management and irrigation it is expected to yield an additional twofold increase.

Similarly, a CIP variety called Cooperation 88, released in 1995 in collaboration with the Root and Tuber Crop Research Institute of Yunnan Normal University in Kunming, China, delivered massive yield gains compared to the East German variety previously in use. "Named in honor of CIP-China collaboration, this potato has become so popular that in some regions, Cooperation 88 has actually become synonymous with, or even replaced, the Chinese word for potato," says Peter VanderZaag, CIP's Board Chair, who also helped establish seven CIP projects in China. When he served as CIP's coordinator for Asia in the 1980s.

The collaboration around sweetpotato production has been equally significant. For example, in the 1990s, CIP introduced a virus cleanup technology and training that boosted Chinese sweetpotato production by more than 30% on 1 million hectares. It was equal to a nearly 3% rise in world food production. The increase also formed the basis for the largest economic impact in CIP's history; well over $550 million of increased production per year in Shandong and neighboring provinces of the country.

CIP also has contributed significantly to training and capacity development in China. CIP and its

Chinese partners have conducted over 60 courses and workshops, training more than 2,000 Chinese scientists and technicians. Examples of training topics include the evaluation and utilization of germplasm, tissue culture, virus detection and cleaning, seed potato and sweetpotato production, true potato seed production, disease control, and processing technologies. Thirty Masters MSC-level and 10 PhD students have graduated with CIP support –with many becoming the leading scientists in potato or sweetpotato research in China– and hundreds have benefitted from CIP funding to attend international workshops and meetings.

Over the years, the nature of the CIP-China relationship has envolved. Initially, China was primarily a recipient of research and capacity strengthening activities or products from CIP. The relationship had the form of a classic North-South partnership, with CIP as the "northern" or advanced research organization supporting innovation and capacity development to the "southern" or developing country partner, China, geography not with standing.

The CIP-China partnership is moving toward a new model, in which both parties are contributing intellectual, human and financial resources to achieve common benefits. One example of this shift is the CIP-China participation in the Potato Genome Sequencing Consortium. While both were part of the larger consortium, our work together was significant in helping to accelerate the sequencing process and achieve results more quickly and at a lower cost than originally anticipated.

The culmination of the new CIP-China partnership model is the creation of the CIP-China Center for Asia and the Pacific (CCCAP). The new Center will host researchers, visiting scientists, and scholars from throughout the Asia-Pacific region and serve as a regional platform for research and development, building on the CIP-China legacy of friendship, cooperation, and success.

Collaborating to respond to crisis

In May 2008, a 7.9-magnitude earthquake devastated southern China. Along with massive human casualties, the quake wiped out 10,000 hectares of potato fields and most of the crop's production facilities in Sichuan, the country's largest potato producing region. In response, with support from the CGIAR secretariate, CIP led a rehabilitation project to rebuild and enhance potato production in the region. The program is introducing high quality seed and varieties that produce higher yields and are more resistant to late blight disease. It also has focused on training and tools for disease detection and on improving growing and storage facilities.


X. KAIYUN

CIP outputs and outcomes 2009

As a member of the CGIAR, CIP's performance is evaluated annually against a series of monitoring indicators to measure its outputs and outcomes. The CGIAR's Monitoring & Evaluation structure provides CIP and the other centers with a tool to better understand performance and demonstrate accountability. In addition, it is used as an input in CGIAR member fund allocation decisions. In the interest of transparency, we are presenting here the CIP outputs and outcomes as reported for 2009.

Definition: Outputs are the products of research, which address project goals and offer solutions to problems identified in the planning process. They include materials, policy strategies, practices, capacity, and other kinds of knowledge. Outputs include products over which CIP has some control, as opposed to those which are controlled or put into use by others.

Publications

One of the principle measures of outputs in the CGIAR System is the number of externally peer-reviewed publications per scientist. 2009 was a banner year for CIP in this regard. The list of peer-reviewed articles produced by CIP scientists is presented here.

CIP Authors 2009

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Outputs

This section presents CIP outputs as they are reported in the 2009 Monitoring of achievement of mid-term plan output targets.

PROJECT 01
PARTNERSHIPS, MARKETS AND POLICIES FOR PRO-POOR RESEARCH AND DEVELOPMENT

Output 01.01
Principles for effective partnerships to reduce rural poverty and vulnerability (2012).

Target 01.01.01	Other kinds of knowledge	Fully Achieved

Methodology for assessing capacity development and institutional strengthening and their contributions to pro-poor research and development available (with UPWARD).
Comments/Explanations:

Output 01.02
Information available for better targeting of research for development (2012).

Target 01.02.01	Other kinds of knowledge	Fully Achieved

Global trends in sweetpotato and options for poverty impacts analyzed and documented.
Comments/Explanations:

Target 01.02.02	Other kinds of knowledge	Fully Achieved

Method for targeting based on composite MDG indicators available.
Comments/Explanations:

Output 01.03
Strategies for linking farmers with markets and post-harvest innovations (2011).

Target 01.03.01	Other kinds of knowledge	Fully Achieved

Status and new opportunities for SP utilization and marketing assessed in ESEAP and SWCA.
Comments/Explanations:

Target 01.03.02	Other kinds of knowledge	Fully Achieved

Participatory Market Chain Approach to enhance small farmers' livelihoods in East Africa adapted and available to NARS.
Comments/Explanations:

Output 01.04

Pro-poor policies and strategies for institutional learning and change identified and documented (2012).

Target 01.04.01	Policy strategies	Fully Achieved

Strategy for technology innovation policy to achieve pro-poor impacts developed (with Papa Andina and UPWARD).

Comments/Explanations:

PROJECT 02

SUSTAINING POTATO AND SWEETPOTATO BIODIVERSITY FOR CURRENT AND FUTURE GENERATIONS

Output 02.01

Wild and cultivated genetic resources of potato, sweetpotato and nine Andean root and tuber crops (ARTCs) are acquired with their associated information, securely conserved and made available by 2013.

Target 02.01.01	Other kinds of knowledge	>50% Achieved

Current passport, characterization and evaluation data of all germplasm collections standardized and all existing data updated in the online database.

Comments/Explanations:

A basic infrastructure has been put into place to accomodate a new data generation and documentation workflow to transparently show the flow, filtering and transformation of data from the source to the final integration database. This includes standards, templates and software tools. However, since this implied major changes in habits it took longer than expected. Also, other complementary tools on monitoring data quality and overall performance need to be revised or established.

Target 02.01.02	Practices	Fully Achieved

In vitro potato, sweetpotato and ARTCs 100% back-up (blackbox) in another location outside Lima, Peru.

Comments/Explanations:

Target 02.01.03	Practices	>50% Achieved

ISO 17025 accreditation of the seed collections.

Comments/Explanations:

This was not achieved due to lack of technical support and budget.

Target 02.01.04	Materials	Fully Achieved

Two percent of the cultivated potato (4640 accessions), 5% of wild potato (2448), 0.2% of sweetpotato (6855), 1% of wild sweetpotato (1171), 100% of maca (35) regenerated for the seed collections.

Comments/Explanations:

Target 02.01.05	Practices	Fully Achieved

All accessions of cultivated potato, sweetpotato, oca, ulluco and mashua are duplicated in both field and *in vitro* collection.
Comments/Explanations:

Target 02.01.06	Materials	>75% Achieved

Virus elimination of potato (~2,000), sweetpotato (~3,300), ARTCs (~600) down to 1,600, 2,900, and 500 accessions, respectively.
Comments/Explanations:
Procedures for ARTCs virus testing requires optimization. Virology Unit in charge of this activity is working on this. Resources for ARTCs virus elimination were derived for re-checking potato health status following improved methodologies according ISO accreditation procedures.

Output 02.02

The genetic diversity of potato, sweetpotato and nine other Andean root and tuber crops is characterized and documented by 2013.

Target 02.02.01	Materials	Fully Achieved

Genetic identity confirmation: 80% of cultivated potato field collection (4,640) confirmed. 200 accessions of cultivated potato in *in vitro* collection (4817) confirmed. 200 accessions of cultivated sweetpotato confirmed.
Comments/Explanations:

Target 02.02.02	Materials	Fully Achieved

Duplicate identification and elimination: Characterization and identification duplicates of 200 accessions of cultivated potato *in vitro* collection 200 accessions of cultivated sweetpotato collection completed and 400 accessions by morphological characterization. 109 accessions of mashua characterized.
Comments/Explanations:

Output 02.03

Selected gene pools of root and tuber crops are evaluated for breeders' traits of interest, nutritional and health-related attributes by 2013.

Target 02.03.01	Materials	Fully Achieved

Screening for biotic traits: At least 30 genotypes of wild potato accessions evaluated for PLRV.
Comments/Explanations:

Target 02.03.02	Materials	Fully Achieved

Screening for abiotic traits: *In vitro* screening methodology identified for evaluation of salinity tolerance in potato and sweetpotato. 50 cultivated potato screening for response to calcium application in Andean farmer conditions.
Comments/Explanations:

Target 02.03.03	Materials	>75% Achieved

Screening for nutrition / health promoting metabolites: Total carotenoids, beta-carotene, protein, starch and dry matter of 300 accessions of sweetpotato determined (4.8% of CIP-genebank). Protein and dry matter of 300 accessions of potato determined (6.5% of CIP-genebank). New methods developed for massive screening vitamin C in CIP potato Genebank. Maca ecotypes with new feed uses (effect on animal fertility) identified. Sesquiterpeic lactones content in 15 yacon accessions determined. Infrared spectroscopic protocol for rapid and cost effective quantification of polyphenol content in potato identified. Scope of using spectroscopic methods for rapid identification of samples determined and protocols standardized.
Comments/Explanations:
The new methods for massive screening vitamin C were not possible to develop. The methods don't work with freeze-dried samples.

PROJECT 03
VARIETIES WITH ENHANCED RESILIENCE, MARKET AND NUTRITIONAL VALUE

Output 03.01
Effective strategies for the identification and dissemination of high-yielding, resistant and nutritious potato and sweetpotato varieties available for each CIP region (3-5 years).

Target 03.01.01	Materials	>50% Achieved

Late blight resistant potato clones selected in multilocation trials in Vietnam, Myanmar and Indonesia.
Comments/Explanations:

Target 03.01.02	Practices	Fully Achieved

Protocols for characterizing tuber bulking and dormancy developed and implemented for documentation and enhanced potato breeding capacity.
Comments/Explanations:

Target 03.01.03	Materials	Fully Achieved

New early maturing, late blight / virus resistant potato clones evaluated and selected in SWA countries.
Comments/Explanations:

Target 03.01.04	Practices	Fully Achieved

Network of potato breeders in LAC, for the exchange of capacities in crop improvement and selection and promotion of new varieties with market and sustainability traits, is established.
Comments/Explanations:

Target 03.01.05	Materials	Fully Achieved

Utility of participatory breeding trials in variety release procedures demonstrated in Peru.
Comments/Explanations:

Target 03.01.06	Materials	<50% Achieved

Potato clones with tuber quality for table consumption identified for local use in North China.
Comments/Explanations:
The experiments were conducted in Heilongjiang, Hebei, Ningxia, and Gansu. The materials were evaluated in the field in different locations. Because of the data sort and analysis, this couldn't be finished by the end of 2009. IVF-CAAS kept a number of advanced clones selected from CIP materials, including those resistant to multiple viruses and tolerant to drought. Some of these clones could be put in the national or provincial trials for the release of new potato varieties.

Output 03.02

Potato populations, clones and true seed varieties with resistance, nutritional and market traits are developed for SSA, LAC, ESEAP and SWCA.

Target 03.02.01	Materials	Fully Achieved

Ten elite late blight resistant clones with heat tolerance and good table quality available.
Comments/Explanations:

Target 03.02.02	Materials	Fully Achieved

Heat tolerance variability of CIP's advanced virus resistant potato population documented.
Comments/Explanations:

Target 03.02.03	Materials	Fully Achieved

Heterosis between two independently improved LB resistant population groups assessed and documented.
Comments/Explanations:

Target 03.02.04	Materials	Fully Achieved

Six 4x families with late blight resistance from diploid wild *Solanum Piurana* crossed to cultivated potato available.
Comments/Explanations:

Target 03.02.05	Materials	>75% Achieved

Chromosome regions associated with carotenoids identified and gene expression studies for enzymes involved in carotenoid synthesis documented.
Comments/Explanations:

Target 03.02.06	Other kinds of knowledge	Fully Achieved

Physiological traits associated with drought tolerance in tetraploid potatoes are described.
Comments/Explanations:

Target 03.02.07	Materials	Fully Achieved

40 selected true seed families combining resistance to late blight and viruses and required end-use quality available to NARS in ESEAP.
Comments/Explanations:

Target 03.02.08	Materials	Fully Achieved

Genetic parameters for drought tolerance determined in native potato cultivars.
Comments/Explanations:

Target 03.02.09	Other kinds of knowledge	Fully Achieved

Ry gene locus in neo-tuberosum and *S. stoloniferum* germplasm is characterized and compared.
Comments/Explanations:

Output 03.03

Sweetpotato populations and clones with superior agronomic, nutritional and end-use quality characteristics are developed for SSA, LAC, ESEAP and SWCA and breeding methods tools, information and capacities are enhanced (3-5 years).

Target 03.03.01	Materials	Fully Achieved

4-6 new drought tolerant higher beta-carotene, high dry matter, medium iron and zinc elite VA-1x clones available and disseminated by interregional elite demonstration & GxE trials in all CIP regions (with HarvestPlus, VITAA).
Comments/Explanations:

Target 03.03.02	Materials	Fully Achieved

25-35 elite demonstration clones including new OFSP elite VA-1x clones and pathogen free S1 and S2 clone established and under multiplication in 20 countries (with HarvestPlus, VITAA).
Comments/Explanations:

Target 03.03.03	Materials	>75% Achieved

(VA-2x x VA-2) hybrid generation comprising 300 seed families with improved high beta-carotene, medium iron & zinc and high dry matter available and tested for SSA and LAC (with HarvestPlus).
Comments/Explanations:
Very large experiment – the analysis of results alone will take 3 to 4 months. The target should have been moved to 2010 when it was still possible. However, nice and VERY promising results are already available. Output Category is mainly practices and scientific knowledge but of course also material has been developed – most importantly is that about 4500 seeds of the hybrid population are still available, which could be used to support another breeding program (suggested for India).

Target 03.03.04	Materials	Fully Achieved

200 promising drought-tolerant clones with medium to high dry matter, beta carotene, Fe and Zn content identified in VA-2 breeding population by CIP-HQ for LAC & SSA.
Comments/Explanations:

Target 03.03.05	Materials	Fully Achieved

VA-E2 generation comprising 8 x 2000 elite seed crossings with drought tolerance and high dry matter, high beta-carotene, medium iron & zinc populations available for all CIP regions (with HarvestPlus).
Comments/Explanations:

Target 03.03.06	Materials	Fully Achieved

VA-2x generation comprising 80 seed families segregating for resistance to clorotic stunt virus (SPCSV) with improved high beta-carotene, medium iron & zinc and high dry matter available and tested for SSA and LAC (with HarvestPlus).
Comments/Explanations:

Target 03.03.07	Capacity strengthening	>50% Achieved

Rapid NIRS screening methods for protein quality (amino acid composition) in sweetpotato tested and established (with HarvestPlus).
Comments/Explanations:
For this Output target the available funds were very limited. Amino acid analysis by referece methods is extremly expensive and we could do only a very limited number of samples. These results are not sufficient for robust NIRS calibration development and further applications.

Target 03.03.08	Capacity strengthening	<50% Achieved

Rapid NIRS screening methods for water use efficiency (WUE) in sweetpotato tested and established (with HarvestPlus).
Comments/Explanations:
Due to financial limitations in HarvestPlus this target could not have been achieved by 2009. The activities included in this target have been reprogrammed in the SASHA project and also together with ARC-Roodeplaat in South Africa. Targets should be achieved by 2011.

Target 03.03.09	Other kinds of knowledge	Fully Achieved

EST libraries from drought-challenged sweetpotato clones established and sequenced (with GCP).
Comments/Explanations:

Target 03.03.10	Materials	Fully Achieved

A DArT genotyping tool for sweetpotato (with GCP).
Comments/Explanations:

Output 03.04

Transgenic potatoes and sweetpotatoes for resource-poor producers and consumers are developed and tested using good practices (3-5 years).

Target 03.04.01	Materials	Fully Achieved

Sweetpotato transformation intragenic vector is available for researchers worldwide.
Comments/Explanations:

Target 03.04.02	Materials	>75% Achieved

Field resistance of transgenic potato with programmed hypersensitive resistance to LB is assessed in the US.
Comments/Explanations:
We need to repeat once more the field trial to assess LB resistance for a few events that showed different results when performed with untransformed plants in greenhouse and these two preliminary field trials.

Target 03.04.03	Materials	Fully Achieved

Spectrum of resistance to LB in selected events of transgenic potato with the Rpi-blb1 gene is tested in biosafety greenhouse in Peru.
Comments/Explanations:

Target 03.04.04	Materials	Fully Achieved

Sweetpotato events with new SPCSV resistance constructs tested for virus resistance in greenhouse.
Comments/Explanations:

Target 03.04.05	Materials	Fully Achieved

Socio-economic impact study of virus and weevil of sweetpotato in DR Congo (Kivu province), Burundi, Rwanda, and Uganda is available.
Comments/Explanations:

Output 03.05

Novel genotyping and phenotyping tools and screening strategies for efficient potato and sweetpotato germplasm characterization and enhancement.

Target 03.05.01	Practices	Fully Achieved

A new modeling tool that integrates genetic, genomic and environmental data is available for use in breeding.
Comments/Explanations:

Target 03.05.02	Practices	Fully Achieved

One scale for quantifying late blight resistance developed and available globally.
Comments/Explanations:

Target 03.05.03	Practices	Fully Achieved

Real time PCR method for rapid screening of sweetpotato germplasm for SPVD resistance developed.
Comments/Explanations:

Target 03.05.04	Other kinds of knowledge	Fully Achieved

Real time PCR method for quantifying *R. solanacearum* colonization of potato plants developed and available.
Comments/Explanations:

Target 03.05.05	Materials	Fully Achieved

New rapid multiplex assays for Ry marker detection in potato are developed and available.
Comments/Explanations:

PROJECT 04

CROP MANAGEMENT FOR SUSTAINABLE INTENSIFICATION OF POTATO AND SWEETPOTATO BASED CROPPING SYSTEMS

Output 04.01

Strategies and technologies for improving seed systems, contribute to CIP's variety dissemination and improve agronomic management towards sustainable intensification of potato and sweetpotato cropping systems validated in at least three priority countries per region (LAC, SSA, Asia) by 2012.

Target 04.01.01	Other kinds of knowledge	>75% Achieved

New rapid multiplex assays for Ry marker detection in potato are developed and available.
Comments/Explanations:
The strategy has been partially implemented already, especially in Tajikistan where we operate trying to integrate public (Horticulture Institute, Dushanbe) and private sector (NGOs such as German Agro-Action and Global Partners in Tajikistan). In this case the goal is to enhance farmer-based seed systems by means of TPS technology. Tajikistan is, in fact, considered a doubly landlocked country (you need to cross two countries to have access to the sea) and with a large majority of poor-resource farmers who are not be able to purchase imported seed potatoes. There is no formal potato seed system. In countries like Tajikistan it is extremely important to establish a sustainable seed system in order to avoid what happened to a FAO project which was completed a few years ago leaving the country as it was before the project started.

Target 04.01.02	Other kinds of knowledge	>75% Achieved

Comparative analysis of potato seed systems in subtropical highlands, lowlands and temperate regions of China and South East Asia carried out.
Comments/Explanations:
We are going to write two working papers, one is in Chinese and another is in English. The English version should be finished around January 2010 and the Chinese paper should be published in Journal in 2010.

Target 04.01.03	Practices	>75% Achieved

Feasibility of using aeroponics for the production of pre-basic potato minitubers as a replacement for methyl bromide sterlized substrate assessed in Peru and China.
Comments/Explanations:
Analysis for China not yet completed. Additional analysis for SSA will be undertaken once R. Labarta is relocated to Nairobi.

Target 04.01.04	Practices	>75% Achieved

Technical options for low-input (organic) potato production evaluated in Peru, and implications for regional application analyzed (with Papa Andina).
Comments/Explanations:
The regional aspect could not be fully covered as a collaborative project in Bolivia has not yet been concluded.

Target 04.01.05	Capacity strengthening	>50% Achieved

Seed supply system, access to varieties, and information about how sweetpotato production/seed systems relate to farmers' overall agricultural livelihoods documented in selected highland and lowland regions of Papua New Guinea.
Comments/Explanations:
The survey report from the Solomon Islands has been completed and requires minor editing after distributing to project partners to obtain comments and input that will be submitted immediately. While the report from PNG experience delays due to the budget review as requested by NARI, but the activity is ongoing.

Target 04.01.06	Other kinds of knowledge	Fully Achieved

Develop Quality Declared Seed protocols for sweetpotato, ARTCs and potato in collaboration with FAO and appropriate NARS and capacity building provided to key stakeholders.
Comments/Explanations:

Output 04.02

Technologies for the management of LB, viruses and BW developed and capacities for assessing the risk due to changes in pathogen population, climate and systems intensification assessed in at least three priority countries per region by 2012.

Target 04.02.01	Other kinds of knowledge	Fully Achieved

GIS modeling tool for assessing effects of climate change on LB disease developed.
Comments/Explanations:

Target 04.02.02	Other kinds of knowledge	Fully Achieved

Efficacy of phosphonate for LB control tested in Peru, Ecuador and Papua New Guinea.
Comments/Explanations:

Target 04.02.03	Other kinds of knowledge	Fully Achieved

Spore dispersal dynamics of *Phytophthora infestans* (LB) quantified by field trials in highland tropical conditions in Ecuador.
Comments/Explanations:

Target 04.02.04	Other kinds of knowledge	Fully Achieved

Predictions of likely spread of Potato yellow vein virus in the Andes by ground truthing surveys validated and model improved as appropriate.
Comments/Explanations:

Target 04.02.05	Please select...	Fully Achieved

Potato virus distribution in different agro-ecological conditions of Uzbekistan determined.
Comments/Explanations:

Target 04.02.06	Other kinds of knowledge	>75% Achieved

System for production of diagnostic antisera, laboratory and field diagnostic kits for potato plant

viruses established by a previous FAO project assessed in Tajikistan to serve regional purposes (CAC).
Comments/Explanations:
The report is 100% completed, however, the activity will be considered completed as soon as we send the porposal and apply for funds (approximately end of February 2010).

Target 04.02.07	Other kinds of knowledge	>75% Achieved

The importance and incidence of major viruses affecting sweetpotato determined in Rwanda, Burundi, D.R. Congo (Kivu districts only) and Uganda.
Comments/Explanations:
ELISA data from DR Congo is missing due to technical failure of their assays.

Output 04.03

Components and strategies for the integrated management of potato and sweetpotato pests of global and regional importance and tools for assessing pest risks under climate change and system intensification developed and tested in at least three priority countries per region by 2012.

Target 04.03.01	Other kinds of knowledge	>75% Achieved

Potential strategies for natural enemy conservation to support self-regulation of potato pests in potato cropping systems of Peru (Andean highlands, coast) evaluated and documented.
Comments/Explanations:
Two working papers for the Peruvian highland and Peruvian coast were uploaded, but both papers need revision and a more profound introduction and discussion with an updated list of rerferences.

Target 04.03.02	Other kinds of knowledge	>75% Achieved

The efficacy and potential integration of entomopathogenic fungi in pest management strategies for LMF assessed in Peru.
Comments/Explanations:
The repetition of the major semi-field experiment failed because of mite problems and the need for chemical applications which affected the leafminer fly population. Before the results can be considered for a journal publication this trial needs to be carried out in 2010.

Target 04.03.03	Other kinds of knowledge	>75% Achieved

Insect life cycle modeling software (ILCYM) developed and validated for insect species of different orders and families.
Comments/Explanations:
ILCYM has been further improved (now version 2.0) and several insect species (pest and parasitoides) were evaluated using the ILCYM software. New functions have been added to the model building tools while the GIS environment has been further developed. However, due to the unforeseen leave of Daniel Chavez (R-programming for ILCYM) the tools for running two-species interaction models in ILCYM are still not implemented in the software.

Target 04.03.04	Other kinds of knowledge	>75% Achieved

Phenology models for *L. huidobrensis* developed and potential distribution assessed globally by GIS.
Comments/Explanations:

Life-table collection and the phenology modeling for the leafminer fly have been completed but the working paper has not yet been finalized.

Target 04.03.05	Other kinds of knowledge	>75% Achieved

Biological control options (biopesticides and/or parasitoids) appropriate for resource-poor potato farmers in Nepal, Bhutan and Bangladesh verified and capacity building for local production of the agents provided.
Comments/Explanations:
Dossiers for importation of PTM specific parasitiodes to Nepal (according to FAO code of conduct for exotic biocontrol agents) have been finalized (part 2 finalized for Bhutan, see document below); however, the exportation process was delayed because a special export permit had been requested from the Peruvian autorities before shipment. All three exotic parasoid species are now reared at NARC, Nepal. First released in pilot sites will be conducted during 2010. Some activities (e.g. research on PoGV and other microbial control agents, botanicals) will be continued/extended in Nepal next year (ADA funded project).

Target 04.03.06	Other kinds of knowledge	Fully Achieved

Feasibility study of introducing the parasitoid Endovum puttleri conducted and dossiers prepared according to the FAO Code of Conduct for its introduction to CAC.
Comments/Explanations:

Output 04.04

Participatory strategies and methods developed, and capacity building undertaken with an innovation systems approach for sustainable intensification of potato and sweetpotato cropping systems in at least three priority countries per region by 2012.

Target 04.04.01	Capacity strengthening	Fully Achieved

Extension capacity enhanced for the dissemination of improved sweetpotato production practices to improve cost-effectiveness of pig production in Papua New Guinea and lessons extracted for other countries in the Pacific Region.
Comments/Explanations:

Target 04.04.02	Other kinds of knowledge	<50% Achieved

Farmers perceptions about climate change, causes, consequences and solutions documented through participatory methods in Peru.
Comments/Explanations:
The design and pre-testing of the questionnaire took more time than expected. It was preferred to invest more time in this phase to ensure proper data collection in the field.

Target 04.04.03	Capacity strengthening	Fully Achieved

Guidelines for training NARS and extension personnel about how to characterize potato innovation systems available.
Comments/Explanations:

Target 04.04.04	Capacity strengthening	>75% Achieved

Facilitators' guide for LB management validated in Philippines and Indonesia.
Comments/Explanations:
Progress was made regarding the validation of the LB manual. However, the emphasis was on the validation of a BW manual for the Philippines, which was fully accomplished.

PROJECT 05
SYSTEMS APPROACHES TO BUILD ADAPTIVE CAPACITY IN POTATO- AND SWEETPOTATO-BASED

Output 05.01
Procedures, methods and computer-assisted decision support tools to improve research targeting, crop monitoring and the assessment of production systems vulnerability to environmental changes developed and tested (by 2011).

Target 05.01.01	Practices	>50% Achieved

Effectiveness of partial root drying (PRD) irrigation method for potato and sweetpotato in Peru established.
Comments/Explanations:
China data has been analysed and a report is being prepared. Another experiment in Peru has been completed and the data will be analysed.

Target 05.01.02	Practices	Fully Achieved

Early diagnostic method for potato pests and diseases using RS data developed in Peru.
Comments/Explanations:

Target 05.01.03	Materials	Fully Achieved

Early analysis of typical patterns of vulnerability with special emphasis on potato-based systems in Peru developed.
Comments/Explanations:

Output 05.02
Strategies for increased resilience and adaptive capacity in Potato systems in the high Andes and SP systems in Southern China and Vietnam identified and validated by 2011.

Target 05.02.01	Practices	>75% Achieved

Strategies for production and utilization of sweet potato to improve livestock feed supply and quality tested and validated in Vietnam and China (with ILRI).
Comments/Explanations:
SLP project has a non cost extension until March 2010. Some experiments are ongoing. Besides results from Piura (clones tolerant to salinization) and Ecuador (clones evaluation) need to be analyzed.

PROJECT 06
AGRICULTURE AND HUMAN HEALTH

Output 06.01
Human health and agriculture linkages that are sensitive to agricultural interventions for health were mapped across learning sites and for special projects (in close collaboration with Division 1).

Target 06.01.01	Other kinds of knowledge	<50% Achieved

Framework for carrying out mapping exercise using existing secondary and appropriate primary data developed.
Comments/Explanations:
Due to withdrawal of previous interim Division leader and the decision not to hire a replacement, there were almost no funds or personnel available to conduct this OT.

Target 06.01.02	Other kinds of knowledge	>50% Achieved

Mapping of linkages conducted at two learning sites, e.g., LAC (Puno) and SSA.
Comments/Explanations:
No direct funding assigned to this OT. Urban Harvest projects have enabled this type of mapping.

Target 06.01.03	Practices	<50% Achieved

Food security and other human health relevant monitoring elements included in special CIP agricultural commodity promotion and system enhancement projects at the developmental stage such that human health relevant impacts are made more explicit in agricultural intervention evaluation.
Comments/Explanations:
Lack of replacement leader of Division meant that no strategy implemented for this kind of mainstreaming of AHH linkages in other projects. HortiSana and SASHA have however incorporated clear AHH dimensions.

Output 06.02
The value of orange-fleshed sweetpotato (OFSP) and potato as components of food-based approaches to dietary diversification and improved nutrition are demonstrated (in close collaboration with Divisions 1, 3, 5).

Target 06.02.01	Other kinds of knowledge	>75% Achieved

Increase in pro-vitamin A intake demonstrated through interventions addressing OFSP production, marketing and demand creation for OFSP. (with Harvest Plus).
Comments/Explanations:
Follow-up surveys to measure the impact of the interventions on vitamin A status and intake were conducted in 2009 in both countries: Data collection completed; Data entry in Mozambique completed and data processing has started; Data entry in Uganda underway. Analysis and write-up will be done in the first half of 2010. Unfortunately, when defining the output targets, we were too ambitious thinking that data can be collected AND entered AND analyzed in both countries in the same year. Uploaded is a presentation that presents progress and some preliminary results (prepared by the former HarvestPlus nutrition coordinator Christine Hotz).

Target 06.02.02	Other kinds of knowledge	Fully Achieved

Framework for joint human health, OFSP consumption and agricultural production indicators for closer estimation of likely health impacts among women and children under 5 developed (with GATES regional proposal).
Comments/Explanations:

Target 06.02.03	Practices	>75% Achieved

Strategies for increasing diet diversification among poor rural households in Uganda and Mozambique analyzed and documented (from Project 1, Output 3).
Comments/Explanations:
This output target also depends on the completion of the REU Uganda and Mozambique follow-up surveys including analysis and write-up. As outlined under Target 1, this will only be completed by mid 2010. Meanwhile, we have data on Nutrition Knowledge Retention among project participants that were collected as part of the operations research to assess whether knowledge of OFSP and its importance in the diet has been increased. It is important to highlight that this work was a collaborative work with Harvest Plus. CIP took the lead of the overall sampling and data collection, but Harvest Plus took the lead for the analysis of the nutrition knowledge retention. The uploaded report for Mozambique is not the final version, but shows the trends. Changes in knowledge do not necessarily lead to behavioral change and adopting the promoted practices —the latter can only be assessed with the results coming out of the impact evaluation.

Target 06.02.04	Practices	Please select...

Effectiveness of community interventions including greenhouses and school programs in high-altitude Andean potato-livestock system documented (in conjunction with ALTAGRO, Project 5).
Comments/Explanations:

Output 06.03

Integrated health and agriculture strategies to reduce pesticide exposure risk and promote healthy and sustainable agriculture among farm families designed and promoted (in close collaboration with Division 4 and Urban Harvest)

Target 06.03.01	Other kinds of knowledge	>50% Achieved

Pesticide exposure pathways and potential environmental impact estimates produced for horticultural systems in three metropolitan regions.
Comments/Explanations:
It was supposed to have a pesticide exposure pathway and an environmental impact quotient with the baseline data of HortiSana, but problems with data cleaning make that job not feasible in 2009, instead, an EIQ study was done with other data, and EIQ values were collected from the FFS, and a entomological study was performed which is reported.

Target 06.03.02	Policy strategies	Fully Achieved

Sustainability criteria and agro-ecosystem indicators relevant to health and pesticide use in cool weather horticultural systems including potatoes are identified with stakeholders.
Comments/Explanations:

Target 06.03.03	Other kinds of knowledge	>75% Achieved

Contribution of horticulture to livelihoods determined in three metropolitan regions in Peru, Bolivia and Ecuador (with Urban Harvest).
Comments/Explanations:
This output target also depends on the completion of the REU Uganda and Mozambique follow-up surveys including analysis and write-up. As outlined under Target 1, this will only be completed by mid 2010. Meanwhile, we have data on Nutrition Knowledge Retention among project participants that were collected as part of the operations research to assess whether knowledge of OFSP and its importance in the diet has been increased. It is important to highlight that this work was a collaborative work with Harvest Plus. CIP took the lead of the overall sampling and data collection, but Harvest Plus took the lead for the analysis of the nutrition knowledge retention. The uploaded report for Mozambique is not the final version, but shows the trends. Changes in knowledge do not necessarily lead to behavioral change and adopting the promoted practices —the latter can only be assessed with the results coming out of the impact evaluation.

Target 06.03.04	Capacity strengthening	Fully Achieved

Training of healthy horticulture promoters in conjunction with NGOs and municipalities as community resources in three metropolitan regions.
Comments/Explanations:

Target 06.03.05	Capacity strengthening	Fully Achieved

A participatory monitoring and evaluation plan for healthy and sustainable horticulture promotion implemented among stakeholders in three Latin American metropolitan regions (with Urban Harvest).
Comments/Explanations:

PROJECT 07
CONDESAN

Output 07.01
Improved understanding of ecosystem, land use and climate dynamics with regard of water resource management in Andean basins (2013).

Target 07.01.01	Capacity strengthening	Fully Achieved

Strengthen capacity of participating countries (Venezuela, Colombia, Ecuador, Peru) governmental and non governmental institutions and individuals working in paramo areas to design and implement participative paramo management plans that establish sustainable practices.
Comments/Explanations:

Target 07.01.02	Other kinds of knowledge	Fully Achieved

State of the knowledge about environmental services in the Andean region documented with emphasis on the hydrological services.
Comments/Explanations:

Target 07.01.03	Practices	Fully Achieved

Ecoregional analysis of experiences on payment for environmental services schemes related to the hydrological services in the Andean region.
Comments/Explanations:

Target 07.01.04	Policy strategies	Fully Achieved

Assessment of the policy framework for the implementation of environmental services schemes.
Comments/Explanations:

Target 07.01.05	Other kinds of knowledge	Fully Achieved

Ecoregional Synthesis of environmental services at different scales (i.e., rural areas vs urban areas).
Comments/Explanations:

Target 07.01.06	Practices	Fully Achieved

Research framework elaborated for benefit-sharing mechanisms related with water, including cultural and social considerations in the Andes.
Comments/Explanations:

Target 07.01.07	Practices	Fully Achieved

Research framework elaborated for the implications of climate change on water availability and how it will affect agriculture, livelihoods and the environment in the Andes.
Comments/Explanations:

Target 07.01.08	Policy strategies	>75% Achieved

Policy instruments (economic, legislative, regulative) that assure the implementation of key ecosystem functions (i.e., water regulation capacity) and Paramo biodiversity conservation plans developed, disseminated and promoted.
Comments/Explanations:
Results still to be available in a workshop with relevant partners in February 2010

Target 07.01.09	Other kinds of knowledge	Fully Achieved

Land Cover and ecosystem classification scheme homologated for the tropical Andes.
Comments/Explanations:

Target 07.01.10	Other kinds of knowledge	Cancelled

Ecoregional Synthesis on Conservationist Agriculture practice in the Andes.
Comments/Explanations:
The Panorama Andino program partners did not prioritize this topic for review, making it impossible for us to work on it.

Output 07.02

Institutional innovations, forms of organization and mechanisms for cooperation, training and dialogue in the Andean agricultural system analyzed across the Andes (2013).

Target 07.02.01	Practices	Fully Achieved

Documentation of structure and effectiveness of innovation capacity in technical projects implemented by CONDESAN partners.
Comments/Explanations:

Target 07.02.02	Other kinds of knowledge	Fully Achieved

Global drivers affecting mountain environments analyzed for the Andes region.
Comments/Explanations:

Target 07.02.03	Other kinds of knowledge	>50% Achieved

Implementation of different Market Chain methodologies analyzed in the Andes region.
Comments/Explanations:
In 2009 we began a study on innovation of agricultural systems in the region. As part of this study, we have identified case studies of innovative agricultural production practices that have been linked to market chains through different approaches. So far we have identified two cases in Peru, one in Bolivia and one in Colombia. Data collected on these cases is in the initial stage. We still need to collect more detailed information on the process of the different elements (key actors, resources, networks and the social and political context among others) involved in the implementation of the different types of methodologies. All in all, we expect to have at least 2-3 cases per country which would represent 14-21 cases for the Andes Region that will give us an overview of market chain methodologies being implemented in the region. Cases initially identified are: (1) Strengthening of capacities in the production, management and commercialization of textile handicrafts in the Yauli District, Huancavelica, Peru. (2) Articulation of charqui and chalona products into local, regional and national markets in Peru. (3) Participative design of sustainable alternatives for management and conservation of Andean tubers agro biodiversity in the Marquez province, Departamento de Boyacá. (4) Oca api (Oxalis tuberosa) as an innovation to link livelihood producers to markets as a strategy to fight against poverty in Bolivia. The cases in Peru have been co-financed by INCAGRO and executed by small rural farmer associations and enterprises that are already finding ways to link to the market. In the case of Colombia, though, a market chain has not yet been implemented, it is seen as a key feature of the whole conservation and management of agro biodiversity. Finally in the Bolivian case, the process of implementation of the market chain has been facilitated by a local NGO.

Target 07.02.04	Policy strategies	Cancelled

Peruvian Innovations systems mechanism described and analyzed.
Comments/Explanations:
This OT was expected to be delivered by the RAMP-Peru project. However during March 2009, the project decided to postpone a review of the Peruvian innovation system for 2010. What CONDESAN has done with the RAMP Peru project was to participate in public events at national scale to share results and methodologies used and to create a broader interest in innovation among the policy makers. Events such as the Innovations National Week and the Regional Contest for Science and Technology, have been strategic venues to bring together different actors involved in the national innovation system.

PROJECT 08
URBAN HARVEST

Output 08.01
Innovative technologies and practices developed for strengthening livelihoods security and increasing productivity and marketing of agricultural commodities along the rural-to-urban continuum (2011).

Target 08.01.01	Other kinds of knowledge	Fully Achieved

Contribution of horticulture to livelihoods determined in metropolitan regions in Peru, Bolivia and Ecuador (with CIP Division 6).
Comments/Explanations:

Target 08.01.02	Practices	Fully Achieved

Livestock production framework for enhanced use and sale of animal source foods (ASFs) validated in Kampala (with CIAT).
Comments/Explanations:

Target 08.01.03	Practices	Fully Achieved

Collective action options identified for agricultural interventions for HIV-AIDS affected households established in Nakuru, Kenya (with ILRI).
Comments/Explanations:

Target 08.01.04	Policy strategies	Fully Achieved

At least two scaling out strategies identified for urban agriculture interventions in Peru, including targeting capacity building approaches for technical and administrative personnel.
Comments/Explanations:

Target 08.01.05	Practices	Fully Achieved

Model of commercial villages approach to agro-enterprise development tested for African leafy vegetables and sweetpotato in Nairobi (with FCI, CIP, AVRDC).
Comments/Explanations:

Target 08.01.06	Policy strategies	>75% Achieved

Viability of converting contaminant-prone urban food production into seedling enterprises tested in Kenya (with CIP, AVRDC, FCI).
Comments/Explanations:

Output 08.02
Methods developed to enhance the safety and sustainability of agriculture along the rural-to-urban continuum and the uptake of urban sources of nutrients (2011).

Target 08.02.01	Practices	>75% Achieved

Agricultural technologies for improved water management tested in Kampala.
Comments/Explanations:

Target 08.02.02	Practices	Fully Achieved

Candidate technologies for agricultural recycling of organic wastes evaluated in Kampala.
Comments/Explanations:

Target 08.02.03	Policy strategies	>75% Achieved

Participatory risk assessment methods for livestock keeping evaluated in Kampala(with ILRI).
Comments/Explanations:

Target 08.02.04	Practices	Fully Achieved

Adaptation of rustic reservoir model for simple water treatment of irrigation water applied in two new horticultural systems.
Comments/Explanations:

Output 08.03

Policy options and institutional and planning strategies to support safe and sustainable agricultural systems along the rural-to-urban-continuum are developed (2012).

Target 08.03.01	Policy strategies	Fully Achieved

Strategies for inserting urban NRM and agriculture into land, waste and health policies developed in Nairobi.
Comments/Explanations:

Target 08.03.02	Policy strategies	Fully Achieved

Policy framework for safe and sustainable urban food production available in Lima and Kampala, involving by-laws, food quality standards (FQS) and/or certification of urban and peri-urban agricultural commodities (with CIAT and Polytechnic University of Madrid).
Comments/Explanations:

Target 08.03.03	Capacity strengthening	>75% Achieved

Application of multi-stakeholder dialogue approach, including community awareness and capacity building to empower them to engage with city authorities in Kampala and Nairobi.
Comments/Explanations:

Target 08.03.04	Capacity strengthening	Fully Achieved

A participatory M&E plan implemented among stakeholders in metropolitan regions in Peru, Bolivia and Ecuador, involving platforms for healthy and sustainable horticulture (with CIP-Div 6 and 1).
Comments/Explanations:

Outcomes

In 2009, CIP dedicated approximately 40% of total spending to assuring outcomes. CIP's 2009 outcomes were reported to the CGIAR according to defined topics and indicators. Those "outcome reports" are presented here.

Definition: An outcome is the external use, adoption, or influence of Center output(s) (e.g., by partners, stakeholders, clients).

CIP Outcome Report 1: Web-based research tool 'agricolae' used by scholars around the world

The outcome is increasing use in the research community of a freely available open source library AGRICOLAE based on the Statistical Software R for analysis and design of experiments.

This is the result of an output target identified in the MTP 2004-2006 (Project 3: Germplasm Enhancement: Milestone 2) for 2005 to enable the web-based analysis of trials.

The achievement of the output is reported in 2006 (see: CIP output reporting database for 2006: project 3 output 1, target 4). The library was originally meant to be primarily used via a form-based interface on a web; however, it soon took on a life on its own. The R library AGRICOLAE itself is now directly used instead of the web-form interface.

Users come from countries like Peru, India, Philippines, China, France, Denmark, Germany, Canada, Poland, Mexico, Brazil, Ecuador, USA and Belgium (see http://tarwi.lamolina.edu.pe/~fmendiburu/index-filer/usuarios.htm). Professional backgrounds of the users includes: agronomy, maize breeding, forestry, statistics, entomology, biology, physics, plant ecology, geography, canola pathology, bioinformatics, weed science and environmental science. Institute types include NARS, universities, CGIAR sister centers, ARI and ministries.

The library is not only useful to practitioners but also as a teaching tool and is referred to in courses organized by universities from both the developing and developed world as well as in recent statistical text books. Thus, this tool has by far outgrown is original intent of strengthening capacity of NARS collaborators in potato and sweetpotato breeding. It shows that this tool fills a gap, is now globally used and also cited in peer reviewed journals by other scientists.

The library itself does not develop novel statistical approaches; it rather compiles frequently used statistical procedures and makes

them available in a user-friendly way. Thus, it presents an investment that is very much in line with the overall position of a CG center as a mediator of research tools from universities to practitioners.

However, the wide acceptance of an open source library also has other implications: (a) it presents a paradigm shift since the agricultural community was used to commercial statistical software (this is novel); (b) it underlines the CG mission of providing international public goods (here in the form of peer reviewed free and open source software), (c) it strengthens the institutional image of transparency and reproducibility in research and (d) it has also become a vehicle for publishing potato and sweetpotato field trial data; thus, indirectly creating awareness and educating researchers about topics in these fields.

As part of an overall effort to assure transparency and enable peer review the statistical library was based on the open source package R, uploaded to the R community website of add-on packages (CRAN) in 2006 and presented at a community conference (UseR! Conference, Iowa State University 2007). This resulted in further favorable peer review as AGRICOLAE was listed early and prominently in a special summary section on experimental design tools within the R community. It is also listed as a core library implying that it has both satisfied peer review and a need in the R statistical community. Since the library has been available on the public R community web server it can now be found by simply googling "AGRICOLAE" and clicking the first hit.

The library eventually was again successfully peer reviewed as a MSc thesis project of its main developer at a well-regarded Peruvian university in 2009. As part of his thesis the developer conducted a survey of the user base that not only revealed very high user satisfaction but also an impression of the variety of the user base. The survey was conducted via the web; 48 responses were received with 35 from Peru and 13 from outside of Peru (chapter 4.2.8 of the thesis, Evidence 1). One-third of the users had used the library for more than one year. More than 80% of the users stated they would continue to use AGRICOLAE in the future.

A recent review of the web and Google scholar database revealed other uptakes: the package is used as a teaching tool by other instructors in crop or related sciences: e.g., in statistical classes for students of agriculture and biology at the university of Kassel, Germany or for teaching professionals, e.g., at a recent course at the agricultural institute in Ljubljana, Slovenia by instructors from the university of Copenhagen, Denmark. It is also referenced in peer reviewed journals.

Outcome Report 2: Uptake of methods and tools for the analysis of environmental vulnerability by NARS.

The outcome is the uptake of methods and tools for the analysis of environmental vulnerability by professionals in NARS partner institutions. CIP has developed methods and tools for the analysis of environmental vulnerability which are being adopted and applied by several NARS and partners in LAC, Asia and Africa. These immediate users have been trained in the utilization of such analytical methods through different collaborative projects.

The output that produced the outcome resulted from the 2006 MTP Project 5 output 1 which is: Methods, options and strategies for improved targeting and Environmental Vulnerability Analyses, preparedness and mitigation in the Andes, SSA and SWCA developed.

The achievement of the output/output target has been documented in the annual reports of the project Desarrollo de bases para el análisis de la

vulnerabilidad en agro-ecosistemas de montaña, funded by INIA-Spain.

The output –methods and tools– has been adopted by professionals in NARS partner institutes in LAC such as INIFAP (Mexico), INTA (Costa Rica), IDIAP (Panama) and INIAP (Ecuador) and is being applied in the analysis of vulnerability of different watersheds in the face of climate change. This adoption represents a "research outcome" which is defined as the acceptance of tools and methods, the development of capacities among partners and the use and application of tools and methods by partners. The strategy used by CIP to promote the adoption of the outputs included 1) the validation and initial training of trainers in CIP-managed learning sites followed by the implementation of tools and methods in the NARS institutes' own learning sites, as are currently being conducted in Mexico, Costa Rica, Panama, Ecuador, Peru and Bolivia; 2) the backstopping of local trainers in national training events; 3) presentations in international forums; 4) improved visualization of scenarios for decision makers; and, 5) joint publications with NARS partner institutes.

The output –methods and tools– has been incorporated into the R&D practice of the above mentioned NARS, where Environmental Vulnerability Analysis units have been formally implemented at INIFAP, INTA, IDIAP and INIAP, following a period of training by CIP scientists. The research agenda of those institutions now include explicit work on vulnerability as affected by climate change. The output has also been adopted by other agencies in the region, such as CATIE, the University of Costa Rica and the Costa Rican Institute of Electricity (ICE).

As to the magnitude and significance of the outcome relative to the intended recommendation domain, it is important to point out that the corresponding output is not intended to be used by final beneficiaries such as farmers. This is a research outcome influencing researchers and extension agents in NARS. The subsequent development outcomes and impacts will be produced as a consequence of the improved analytical and research capabilities of our partners.

The evidence of the outcome is provided by a review paper published in Advances in Agronomy (Bouma, J., Stoorvogel, J., Quiroz, R., Staal, S., Herrero, M., Immerzeel, W., Roetter, R.P., van den Bosch, R., Sterk, G., Rabbinge, R., and Chater, S. (2007). Ecoregional Research for Development. Advances in Agronomy, 93:257-311.). It shows the application of the analytical tools in several cases including the analysis of trade-offs in agricultural development in Ecuador and Kenya, the construction of sustainable land use scenarios in Panama in the face of free trade agreements and the signaling of constraints in sustainable use of water resources in Tibet. Evidence is also provided by the use made of it by research teams in Mexico, Costa Rica and Peru reflected in the reports from the above mentioned project funded by INIA-Spain in collaboration with local NARS in LAC and by the participation of NARS in the symposium Evaluación de la Vulnerabilidad de los Sistemas Agropecuarios a la Variabilidad Ambiental, organized as a side meeting of the LIV Meeting of PCCMCA (Programa Cooperativo Centroamericano para el Mejoramiento de Cultivos y Animales) held in San José, Costa Rica in April 2008. In this symposium, all participant NARS in the INIA-Spain funded project presented their advances on the implementation of the analytical tools in the analysis of vulnerability of different watersheds. All presentations are available at the link http://inrm.cip.cgiar.org/home/pub08.htm

Outcome Report 3: The adoption of aeroponics for improving the production of pre-basic potato-seed by public and private partners in sub-Saharan Africa and the Andes of Peru and Ecuador.

The outcome is the rapid adoption by NARS, NGOs, local government and private companies of a novel technology, called aeroponics, for the rapid multiplication and production of pre-basic potato seed in developing countries in the Andes and sub-Saharan African. The technology is a soil-less system and provides an alternative to the use of methyl bromide, used to sterilize soil-based substrates. Multiplication rates of about 50:1 can be achieved compared with about 6:1 in conventional production. This rapid multiplication has the result of reducing the need for field multiplication from typically six field cycles to three and thus reduces the pressure on scarce land resources and the burden of important seedborne diseases. A significant reduction in the cost of production of pre-basic seed in turn reduces the cost of clean seed to smallholder farmers. CIP adapted the technique (originally developed in Korea and recently adopted in China), to suit developing country conditions using locally available materials.

The outcome resulted from outputs reported in CIP's MTP report of 2008 which was the completion of a 29-page manual describing the steps needed to build an aeroponics facility. The output achievement was documented in the CIP Research web-based intranet site dedicated to tracking completion of MTP output targets. A working paper based on this technology and including a cost benefit analysis of a comparison with conventional soil-based systems was also published on the CIP website (http://www.cipotato.org/publications/pdf/004336.pdf).

The output was used by 14 institutions in six countries (See evidence Annex 1) and included both the national potato programs in Latin American and African countries, but also interestingly one local government (Pazos municipality) and one NGO (ADERS) in Peru. Of particular interest has been adoption of the technology by the private sector on both continents.

How was the output used? The output target of 2008 was a 29-page manual which describes both the planning and construction as well as the operation of aeroponics facilities and was produced as an IPG by CIP HQ staff in Lima. The manual was subsequently used by both partners and CIP regional staff in replication and subsequently operating aeroponics facilities in both the Andean region and SSA.

The magnitude of the outcome: Adoption of the technology has generated an additional capacity for countries in the two regions to produce more than 1 million virus-free pre-basic minitubers which would yield some 20,000 tonnes of quality seed after three field multiplication cycles. This seed would be worth some $6 million to seed multipliers (at current Kenyan prices) and is sufficient to plant some 10,000 ha of potato production i.e., sufficient to impact some 40,000 small holder farmers. Extrapolating from 2009 yield trial data, we might expect to see a doubling of yield from planting this seed compared with farmers seed (under good management) which would translate into an additional 25,000 tonnes of production worth an additional $16 million to ware growers. Likewise, there is no reason to suppose that the technology will stop expanding in the potato production areas of the two regions although the ultimate demand for quality seed remains unknown at this point. At the point of writing, CIP and its partners have funding or are receiving requests to expand the technology into Ethiopia, Tanzania and Burundi along with an indication

the national programs of Rwanda and Uganda themselves intend to invest in the technology to expand the scale of operation.

The evidence for the adoption of the technology and attribution to CIP's contribution is relatively simple as the production of seed is easily monitored and CIP is currently the only source of information or technical support on aeroponics in both the Andes and SSA. Basically ongoing project monitoring studies undertaken in December 2009 in Kenya (J. Obado) and Ecuador (J. Andrade) have reported on total mini-tuber yields to date from the respective facilities in their first phase of production. In addition, various press articles have been written about the earlier uptake of the technology in the Andean region, particularly in Peru.

Outcome Report 4: Uptake of crop-livestock sweetpotato feed technology by national R&D organizations in LAC and South East Asia.

The outcome is the uptake of crop-livestock sweetpotato feed technology by national R&D organizations in LAC and South East Asia. CIP has developed a dual-purpose technology for smallholder's crop-livestock production systems where fresh foliage and roots and the silage of root and vines contribute to the diets for fattening pigs as well as ruminants. The achieved outcome is that the already validated sweet potato-pig fattening operation has been included in the portfolio of technologies that several national R&D agencies are disseminating among smallholders in South East Asia and Latin America.

The output which produced the outcome resulted from 2006 MTP project 5 output 3: Principles and approaches to develop adaptive capacity in agricultural systems in the Andes, SSA, and Asia.

The achievement of the output/output target has been recorded in published papers documenting the development of the components and integration of the technology such as: Nguyen, T. T. and León-Velarde, C.U. (2009) Searching for feeding strategies based on sweet potato silage to improve smallholder crop-livestock production systems in Vietnam and León Velarde, C.U., Quiroz, R., Mares, V. and Casimiro, J. (2009) Potential role of sweet potato to improve smallholder crop-livestock production systems. Both were published in the 15th Triennial Symposium of the International Society for Tropical Root Crops (ISTRC), Lima, Peru, November 2-6, 2009. International Potato Center, Lima, Peru.

The output has been adopted by professionals in R&D national agencies in several countries in SEA and LAC such as Thailand (DLD), VietNam (NIAH), China (SASA-Chengdu) and Dominican Republic (Universidad ISA) for its dissemination among crop/livestock smallholders. Local researchers and extension personnel have been trained in the use of the technology with the support of computer assisted simulation models developed by CIP such as LifeSim, which is freely available through the Internet.

The nature of the influence of the adoption is felt in farm household production practices. Sweet potato (*Ipomoea batatas*) vines, foliage and un-saleable or damaged roots are frequently used to feed animals in Latin America, Africa and East Asia. One major advantage of SP is that besides its use as animal fodder, it may also provide food for human consumption, an optimal integrated crop/livestock management system being able to utilize the sweet potato's good regrowth capacity by continually or sporadically harvesting the vines throughout the growing season before finally harvesting the root. The harvested vines and roots are used to make silage which reduces feeding costs by 15.3 and 17.3% and increased the farm benefit by 43 and

50.8% in comparison to the use of commercial feed pellets. This technology, which includes sweet potato germplasm and agronomy, feed processing, and animal feeding was developed in LAC (Andean and Caribbean countries) and then validated in South East Asia (SEA), over several years.

As to the magnitude of the outcome, at this point in time we have achieved a "research outcome" which is defined as the acceptance of knowledge/technology, the use of knowledge/technology by partners, the development of capacities among partners and the extension of technologies. A "development outcome" will follow the dissemination of the technology among the intended end-users.

The evidence of the outcome in LAC is provided by a joint CIP/Universidad ISA publication (León-Velarde, C.U. y Vásquez Martínez, R.A. 2007. Producción y uso de la batata (*Ipomoea batatas* (L), Lam); estrategias de alimentación animal. Universidad ISA. Santiago de los Caballeros, República Dominicana. 66 p.).

Evidence of the outcome in SEA is provided by the presentations from partners at an SLP sponsored workshop held in Bangkok, Thailand, where the uptake of the technology by NARS and its potential dissemination among crop/livestock smallholders was shown. A publication of the proceedings is forthcoming. The presentations provide evidence from partners from Thailand, Indonesia, Philippines, China, Vietnam and India. As a follow-up towards a "development outcome" a project proposal to be submitted to the Common Funds for Commodities (CFC) is in preparation.

Outcome Report 5: Training method for sharing knowledge between the Andes and Africa analyzed and documented

Outcome statement:
CIP and its partners developed the Participatory Market Chain Approach (PMCA) for stimulating pro-poor innovation and linking farmers to markets in the Andes (Devaux et al., 2009). It was realized that the PMCA as an international public good could be used more widely. PMCA was shared with a new set of partners in Uganda, using exchange visits to build understanding and motivation as well as training and backstopping to create capacity for facilitating PMCA. As partners in Uganda implemented PMCA two sets of outcomes were achieved. Firstly, a wide group of research and development organizations were motivated and trained to implement PMCA. Secondly, outcomes were achieved with final beneficiaries through improved linkages between potato and sweetpotato farmers and markets and improved possibilities for value added to increase farmers' incomes.

Output and output target:
The methods used for training and stimulating south-south learning were reported in 2008 as part of MTP Project 1, as Target 1 in Output 3: "Training method for sharing knowledge between the Andes and Africa analyzed and documented (Papa Andina)"

Achievements and adoption by user and significance of outcome

With next users of the PMCA:
The significance of the outcome has been stimulating considerable broad interest in Ugandan R&D organizations, in donor agencies, in policy circles, and among market chain actors

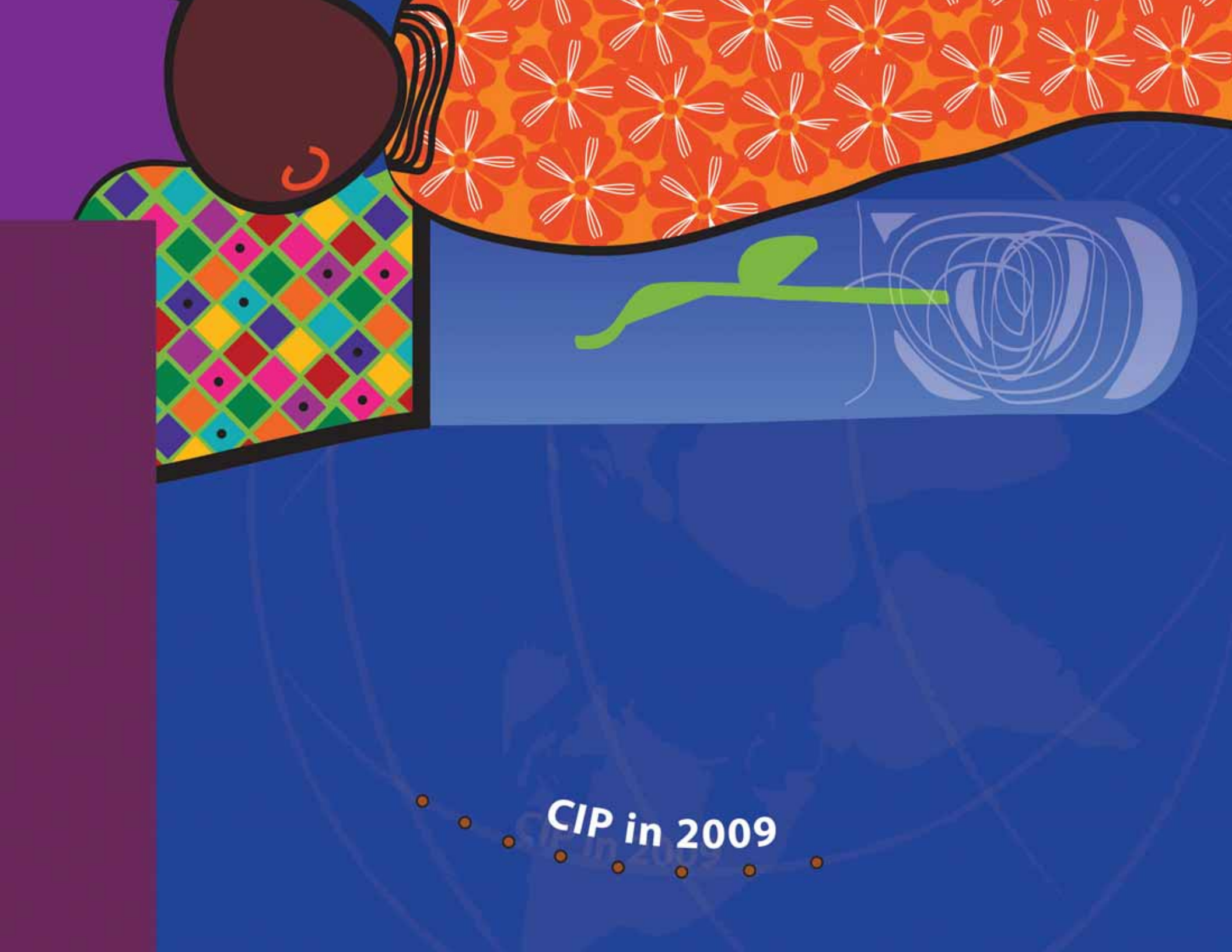
who participated in the work or heard about it (Horton et al., 2010):

- The Zonal Agricultural R&D Institute in Mukono continued to organize meetings of the sweetpotato commodity group, and the institute director expressed interest in mainstreaming use of the PMCA.
- A2N-Uganda received funding from the Catholic Organization for Relief and Development Aid to implement a 3-year project, Poverty Eradication through the PMCA in eight districts of Uganda.
- The PMCA Coordinator went on to work with the Belgian development organization VECO where she continued to mobilize local PMCA experts and promote use of the PMCA in value chains.
- In 2009, The Royal Tropical Institute in The Netherlands developed a curriculum for Agricultural Innovation Coaching in Africa and requested CIP and partners in Uganda to present PMCA as a major input.

With end users (beneficiaries of the PMCA):
Principal outcomes include a new snack-food product made from orange-fleshed sweetpotato (OFSP) chips (Akello et al., 2009). The processor (TomCris) received many requests for this product. Efforts are now geared towards supporting a sustainable and consistent supply of fresh sweetpotatoes for processing. A 'new' variety of OFSP, Naspot 1, was marketed in Kampala's largest supermarket, Uchumi, for the first time. The supplying firm (SULMA Foods) contracted more farmers and introduced the variety to other grocery stores. Composite flours containing OFSP have been developed and pilot-marketed by two Ugandan processing firms, USPPA and Kasawo Millers. A kiosk for marketing clean, sorted and graded sweetpotatoes and processed sweetpotato products was constructed and used for the first time during the PMCA. It was later relocated to a local market where farmers are now marketing OFSP.

One of the most successful outcomes is Bagyabasaaga women-farmers' group in Luwero district in central Uganda, specializing in OFSP. The group's objective was to promote the production and consumption of OFSP rich in beta-carotene (a precursor of Vitamin A) to improve community health, especially that of children and women. Through the PMCA process, the group linked up with two processors, which purchased extra OFSP produced. The first was a flour processor that uses dry OFSP chips, and the second was a major snack processor, which produced a fried snack from OFSP. They subsequently built business relationships that increased sales and competitiveness of sweetpotato, in turn improving farmer incomes

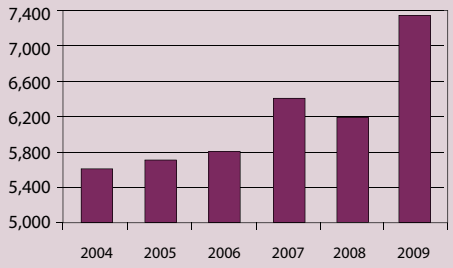
Publications:
Akello, B. I. Mugisa , W. Nakyagaba , M. Nampeera, P. Lusembo and D. Magala l. 2009. Using the participatory market chain approach to generate pro-poor innovations in the sweet potato sector in Uganda. Agricultural Innovations for Sustainable Development – Contributions from the Finalists of the African Women in Science Competition. Volume 2 Issue 1 54-59 http://www.atpsnet.org/pubs/Agri_Innovations_v2.pdf
Horton, D., B. Akello, L. Aliguma, T. Bernet, A. Devaux, B. Lemaga, D. Magala, S. Mayanja, I. Sekitto, G. Thiele and C. Velasco (2010). Developing capacity for agricultural market chain innovation: experience with the 'PMCA' in Uganda. Journal of International Development 22: 1-23


CIP in 2009

Financial report

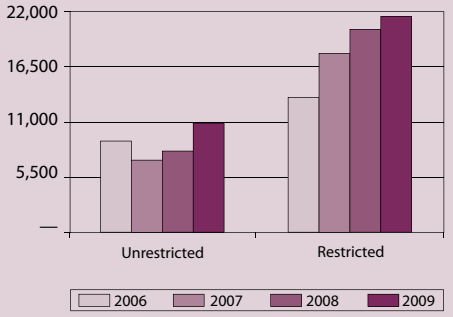
The International Potato Center achieved a US$ 1.5M surplus in 2009. CIP's reserves (measured as net working capital plus long term investments minus net fixed assets) reached US$7.3M.

Financial Reserves (US$ thousands)



Total revenues reached US$32.8M, 16% above 2008. Total revenues include US$10.8M of unrestricted contributions, US$21.4M of restricted donations and US$0.6M of other revenues, consisting of interests earned on investments and exchange rate gains.

Revenues (US$ thousands)

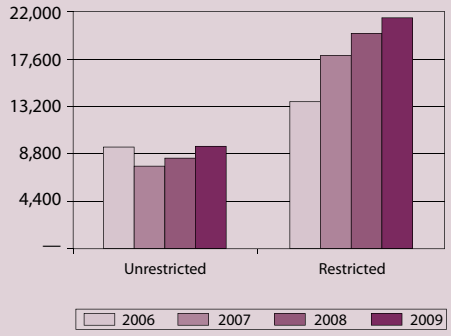


Unrestricted contributions increased 37% from US$7.9 to US$10.8. This is explained by additional contributions from CIDA, Germany, Belgium, Spain and DFID and exchange rate gains. Restricted contributions increased by 8% from US$19.8M to US$21.4M due to an increasing success in obtaining new research contracts.

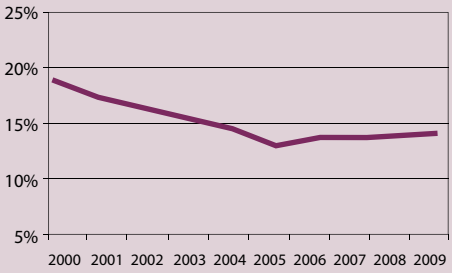
During the year 2009, 52 new project proposals, for a total of US$41.9M were submitted to donors. In this same period 41 proposals for a total value of US$35.2M were awarded, while 21 proposals for a value of US$7.2M were rejected.

Unrestricted expenditures grew 21% from US$8.02M to US$9.8M. CIP's indirect cost ratio, as defined by FG5, CGIAR Cost Allocation Guidelines, reached 14%.

Expenditures (US$ thousands)



Indirect Cost Ratio



The liquidity indicator (measured as net working capital plus long term investments divided by the daily average expenditures excluding depreciation) increased from 92 days in 2008 to 104 days in 2009, due to a good pace in the collection of funds. The financial stability indicator (measured as unrestricted net assets minus net fixed assets, divided by the daily average expenditures excluding depreciation) increased from 84 days in 2008 to 90 days in 2009. The Center will continue exercising prudent policies to improve its financial position, while assuring sustainable growth.

Liquidity (Acceptable range 90/120 days)

Adequacy of Reserves (Acceptable range -75/120 days)

This table summarizes CIP's financial position as of December 2009. A copy of the complete audited financial statements may be requested from the office of the Director for Finance and Administration at CIP headquarters in Lima, Peru.

Statement of financial position Year ending 31 December 2005 (compared with 2008)

	(US$000)	
	2009	**2008**
ASSETS		
Current assets		
Cash and cash equivalent	4,040	4,201
Investments	17,128	13,179
Account receivable:		
Donors	2,571	2,606
Employees	228	185
Others	281	247
Inventory	311	379
Advances	986	641
Prepaid expenses	215	171
Total current assets	**25,760**	**21,609**
Non-current assets		
Investments non-current	3,472	1,429
Furnishing and equipment, net	4,367	3,932
Total non-current assets	**7,839**	**5,361**
Total assets	**33,599**	**26,970**

	(US$000)	
	2009	**2008**
Liabilities and net assets		
Current liabilities		
Accounts payable		
Donors	14,674	11,351
Others	5,173	4,264
Employees	234	173
Accruals and provisions	636	439
Total current liabilities	**20,717**	**16,227**
Non- current liabilities		
Employees	741	397
Accruals and provisions	406	206
Total non-current liabilities	**1,147**	**602**
Total liabilities	**21,864**	**16,829**
Net assets		
Designated	5,317	4,182
Undesignated	6,418	5,959
Total net assets	**11,735**	**10,141**
Total liabilities and net assets	**33,599**	**26,970**

Donor contributions

Donors (For the year Ending 31 December, 2009) (US$ 000)	Unrestricted	Restricted	Total
United States Agency for International Development (USAID)	1,700	2,162	3,862
Canadian International Development Agency (CIDA)	857	1,846	2,703
Swiss Agency for Development and Cooperation (SDC)	955	1,380	2,335
Government of Belgium	2,054	193	2,247
International Bank for Reconstruction and Development (World Bank Group)	1,400	625	2,025
Department for International Development (DFID)	1,147	683	1,830
Government of Germany (BMZ/GTZ)	580	1,162	1,742
Global Enviroment Facility (GEF)		1,552	1,552
European Commission		1,545	1,545
Government of Spain	70	1,064	1,134
Bill & Melinda Gates Foundation		1,063	1,063
Irish Aid	276	635	911
Swedish International Development Cooperation Agency (SIDA)	911		911
Chevron		698	698
Generation Challenge Program		677	677
New Zealand Agency for International Development		623	623
Australian Centre for International Agriculture Research (ACIAR)	242	361	603
International Development Research Centre (IDRC)		574	574
Government of Luxembourg		534	534
Harvest Plus		429	429
Common Fund for Commodities (CFC)		419	419
Government of Peru		405	405
Government of Norway	380		380
Fondo Regional de Tecnologia Agropecuaria		347	347
African Development Bank		290	290
Alliance for a Green Revolution in Africa (AGRA)		228	228
Government of Italy		221	221
The Kilimo Trust		182	182
Government of Austria		167	167
The Buffet Foundation		158	158
Government of China	120	17	137
Secretaria General de la Comunidad Andina		131	131
Government of India	38	80	118
The Lemelson Foundation		118	118
Rockefeller Foundation		99	99
Government of The Republic of Korea	40	52	92
Biotechnology and Biological Sciences Research Council (BBSRC)		87	87
CGIAR – Multidonors		79	79
The OPEC Fund for International Development		75	75
Government of Brazil		63	63
Global Crop Diversity Trust		62	62
Food and Agriculture Organization of The United Nations		59	59
United States Department of Agriculture (USDA)		59	59
The Swedish Research Council Formas		34	34
International Fund for Agricultural Research (IFAR)		31	31
Government of Colombia		29	29
Conservation International Foundation		25	25
Science Council		21	21
Gordon and Betty Moore Foundation		13	13
Government of Ecuador		13	13
Government of Islamic Republic of Iran		13	13
Programa Iberoamericano de Ciencia y Tecnología para el Desarrollo (CYTED)		9	9
Branston LTD		5	5
Government of Philippines		5	5
Kansas State University		4	4
Government of Turkey		3	3
Philippine Council for Agriculture - Visayas State University		3	3
The Mcknight Foundation		3	3
RUAF Foundation		2	2
TOTAL	**10,775**	**21,412**	**32,187**

CIP locations of projects, offices, and activities

1. Angola
2. Argentina
3. Armenia
4. Australia
5. Austria
6. Azerbaijan
7. Bangladesh
8. Belgium
9. Bhutan
10. Bolivia
11. Brazil
12. Burkina Faso
13. Burundi
14. Cameroon
15. Chile
16. China
17. Colombia
18. Congo Dem Rep.
19. Costa Rica
20. Cuba
21. Dominican Republic
22. DPR Korea
23. Ecuador
24. Ethiopia
25. Finland
26. Georgia
27. Germany
28. Ghana
29. India
30. Indonesia
31. Kazakhstan
32. Kenya
33. Kyrgyzstan
34. Laos
35. Luxemburg
36. Madagascar
37. Malawi
38. Mexico
39. Mongolia
40. Mozambique
41. Myanmar
42. Nepal
43. Netherlands
44. Nigeria
45. Pakistan
46. Panama
47. Papua New Guinea
48. Peru
49. Philippines
50. Rwanda
51. Solomon Islands
52. South Africa
53. Spain
54. Sri Lanka
55. Sudan
56. Tajikistan
57. Tanzania
58. Thailand
59. Turkey
60. Uganda
61. USA
62. Uruguay
63. Uzbekistan
64. Venezuela
65. Vietnam
66. Zambia

Global contact points

CIP offices:

1. Cali (Colombia)
2. Quito (Ecuador)
3. Lima (Peru)
4. Huancayo (Peru)
5. San Ramon (Peru)
6. Cochabamba (Bolivia)
7. Sao Carlos (Brazil)
8. Kumasi (Ghana)
9. Cotonou (Benin)
10. Huambo (Angola)
11. Addis Ababa (Ethiopia)
12. Nairobi (Kenya)
13. Kabale (Uganda)
14. Ruhengeri (Rwanda)
15. Lilongwe (Malawi)
16. Blantyre (Malawi)
17. Chimoio (Manica Province, Mozambique)
18. Tashkent (Uzbekistan)
19. New Delhi (India)
20. Shillong (India)
21. Kathmandu (Nepal)
22. Dhaka (Bangladesh)
23. Bhubaneswar (India)
24. Beijing (China)
25. Hanoi (Vietnam)
26. Lembang (Indonesia)
27. Los Baños (Philippines)
28. Manokwari (Papua Indonesia)
29. Wamena (Papua Indonesia)
30. Honiara (Solomon Islands)

CIP Main Headquarters

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Latin America and the Caribbean (LAC)

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Website: www.cipotato.org

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c/o ICARDA- PFU
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c/o International Centre for Integrated
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Fax: +977 1 500 3299 / 3277

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Bandung, 40391, Indonesia
Tel: +62 22 278 5591 / 5586
Fax: +62 22 278 5549
Email: cip-eseap@cgiar.org

Liaison Office China
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Fax: +0086 10 8210 5689
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Vien Chan nuoi
Thuy Phuong, Chem
Tu Liem, Hanoi, Vietnam
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Fax: +84 4 741 0003
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Courier address
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Email: l.sister@cgiar.org

Director General, Pamela K. Anderson (center) and CIP Senior Managers. From left to right: Charles Crissman, Graham Thiele, Valerie Gwinner, Michelle Rodrigo, Amalia Perochena, Dindo Campilan, Philippe Monneveux, Maria White, Michael Pigeon, Carlos Alonso.

CIP's internal structure

BOARD OF TRUSTEES

Office of the Director General

Director General
Pamela K. Anderson

Communications and Public Awareness Dept
Head: Valerie Gwinner

External Relations
Mariella Altet

DDG for Strategy and Corporate Development
Maria White

Human Resources Services
Head: Michael Pigeon

DDG for Research
Charles Crissman

Research Divisions

- **Division 1**: Impact Enhancement
  Leader: Graham Thiele
- **Division 2**: Genetic Resources Conservation and Characterization
  Leader: David Tay
- **Division 3**: Germplasm Enhancement and Crop Improvement
  Leader: Merideth Bonierbale
- **Division 4**: Crop Management
  Leader: Oscar Ortiz
- **Division 5**: Production Systems and the Environment
  Leader: Roberto Quiroz
- **Division 6**: Agriculture and Human Health
  Leader: Graham Thiele

Partnership Programs

- **VITAA**
  Coordinator: Esi Amouful
- **Papa Andina**
  Coordinator: André Devaux
- **UPWARD**
  Coordinator: Dindo Campilan
- **CONDESAN**
  Coordinator: Miguel Saravia

Regional Offices

- **Sub-Saharan Africa (SSA)**
  Regional Leader: Jan Low
- **South, West and Central Asia (SWCA)**
  Regional Leader: Dindo Campilan
- **East, and Southeast Asia and the Pacific (ESEAP)**
  Regional Leader: Fernando Ezeta

Research Support

- **Germplasm and Distribution Unit** Leader: David Tay
- **Applied Biotechnology Laboratory**
  Leader: Marc Ghislain
- **Research Informatics Unit** Leader: Reinhard Simon
- **Capacity Strengthening Dept** Leader: Wayne Nelles
  - **Library** Head: Cecilia Ferreyra

Director of Finance and Administration
Carlos Alonso

Finance
Head: Amalia Perochena

Grants & Contracts Head: Michelle Rodrigo

Information Technology Unit Head: Anthony Collins

Administration
Head: Eduardo Ferreyra

CIP staff list

1. Director General's Office

Director General, Anderson, Pamela K.
Chindgren, Marianne, Administrative Assistant[1]
Altet, Mariella, Manager for External Relations
Infantas, Viviana, Visitors Officer
Alberco, Roque, Audiovisual Technician
Huanes, Martha, Events & Conferences Administrator
Ortiz, Caroll, Administrative Assistant

Deputy Director General for Strategy and Corporate Development, White, María

Deputy Director General for Research, Crissman, Charles
Salinas, Lilia, Administrative Assistant

Director of Finance and Administration, Alonso, Carlos

Grants & Contracts, Rodrigo, Michelle, Head[1]
Sawyer, Jacqueline, Head[2]
Aguilar, Edith, Administrative Assistant[2]
Harrison, Gary, Proposal Manager/technical Writer
Mel, Isabel, Bilingual Secretary
Mendoza, Mery, Grants & Contracts Specialist[1]
Romero, Flor de María, Grants&Contracts Administrator[1]

Communications and Public Awareness Department, Gwinner, Valerie, Head[1]
Stapleton, Paul, Head[2]
Avendaño, Juan Carlos, Publication Assistant
Brenner, Eduardo, Webmaster
Champi, Blanca, Handicraft
Delgado, Ruth, Exhibits/Display Assistant
Fernandez-Concha, Nini, Graphic Designer
Lafosse, Cecilia, Chief Designer
Lanatta, María Elena, Administrative Assistant
Morales, Anselmo, Graphic Designer
Portillo, Zoraida, Spanish Writer-Editor/Media
Ramírez, Mirian, Handicraft
Taipe, Elena, Graphic Designer
Torres, José, Graphic Designer

Finance and Administration Department Administration, Ferreyra, Eduardo, Manager of Administration
Córdova, Silvia, Administrative Assistant
Secada, Ana María, Head, Travel Office[2]

Human Resources, Pigeon, Michael, Human Resources Head
Lazarte, Carla, Human Resources Manager[1]
Marcovich, Rosario, Administrative Assistant
García, Erika, Administrative Assistant
Alfaro, Jorge, Cooking Attendant
Barrios, Teófilo, Cooking Attendant
Castillo, Maria Cecilia, Human Resources Analyst
Cerna, Wilber, Cooking Attendant
Chávez, Raúl, Cook
Ferreyros, Mónica, Auxiliary Services Supervisor
Gómez, Sandra, Human Resources Assistant
Isla, Rocío, Social Worker, Social Welfare and Health Supervisor
Lapouble, Sor, Auxiliary Services Assistant
Llallico, Joel, Cooking Attendant
Navarro, Teófila, Room & Linen attendant
Polo, William, Human Resources Analyst
Quico, Venturo, Cook
Schmidt, Lucero, Nurse
Varas, Yoner, Salary Administrator
Vargas, Gerardo, Cooking Attendant
Ventura, Jerónimo, Cooking Attendant

Logistics
Alarcón, Willy, Maintenance Thecnician
Alminagorta, Luis, Driver
Anglas, Ignacio, Maintenance Technician[2]
Arellano, Tito, Warehouse Supervisor
Auqui, Carlos, Janitor
Auqui, Filomeno, Purchasing Assistant
Blanco, Dalmecio, Mechanic
Briceño, Antolín, Security Officer
Bruno, Genaro, Receptionist
Ccenta, Alberto, Janitor
Ccenta, Leoncio, Warehouse Assistant[2]
Curasi, Mario, Driver
Dueñas, Javier, General Services Assistant
Enciso, Cirilo, Driver
Enciso, Facundo, Janitor
Enciso, Wilmer, Mechanic
Ganoza, Gimena, Purchasing Supervisor
Garay, Marino, Driver
Garay, Rogger, Janitor
García, Raúl, Purchasing Assistant
Gorvenia, José, Security Driver
Guerrero, Atilio, Vehicle Programmer[2]
Marquina, Juan, Driver
Mendoza, Julio, Security Driver
Montalvo, Hugo, Security Officer
Morillo, Antonio, Maintenance Chief
Noa, Martín, General Services Auxiliary
Orellana, Richard, Janitor
Palomino, Juan, Maintenance Technician
Peláez, Pedro, Maintenance Technician
Pozada, Angel, Logistics Assistant
Quispe, Kini, Maintenance Technician
Quispe, Francisco, Carpenter[2]
Tintaya, Teófilo, Security Officer
Uribe, Carlos, Maintenance Technician
Vásquez, Lisardo, Safety Officer

1 Joined CIP in 2009

2 Left CIP in 2009

3 Funded by special project

4 Joint appointment

Vences, Luciana, Purchasing Assistant
Yancce, José, Maintenance Technician
Zapata, Saturnino, Maintenance Technician

Finances, **Perochena, Amalia, Finance Manager**
Bardalez, Eliana, Accountant
Barrantes, Katia, Finance Auxiliary
Chirinos, Raúl, Special Projects Supervisor
García, Harry, Finance Auxiliary[1]
Monteverde, Carla, Assistant Accountant
Neyra, Gladys, Administrative Assistant
Patiño, Milagros, Treasurer
Peralta, Eduardo, Accountant
Saavedra, Miguel, General Accountant
Solari, Sonnia, Cashier
Tapia, César, Assistant Accountant
Zambrano, Mamerto, Office Auxiliary
Zapata, Susana, Accountant
Zuñiga, Tania, Treasury Supervisor

Information Technology Unit,
Collins, Anthony, Head
Castro, Samuel, Helpdesk Assistant[2]
Chang, Candie, Helpdesk Assistant[2]
Del Villar, Roberto, Server Administrator
Díaz, Denis, Linux Administrator[2]
García, Paulo, Helpdesk Assistant[1]
Guillermo, David, Systems Assistant[1]
Navarro, Rolando, Network Administrator
Orué, Raúl, Systems&Security Administrator[1]
Puchuri, Jacqueline, Administrative Systems Analyst
Palacios, Dante, Helpdesk Administrator[2]
Palomino, Omar, Systems Assistant[3]
Rodríguez, Saúl, Web Systems Analyst
Torres, Edgardo, Systems Development Administrator
Valdivieso, Peter, Helpdesk Assistant

2. Divisions

Impact Enhancement Division
Graham, Thiele, Anthropologist, Division Leader
Ashby, Jacqueline, Research Coordinator, Colombia
Campilan, Dindo, Sociologist, CIP-SWCA Regional Leader
Fonseca, Cristina, Agronomist, Intermediate Researcher
Hareau, Guy, Agricultural Economist[3]
Hell, Kerstin, Marketing and Post Harvest Specialist
Labarta, Ricardo, Post Doctoral Agricultura Economist[3] (Mozambique)
Low, Jan, Economist, CIP-SSA Regional Leader
Maldonado, Luis, Economist, Intermediate Researcher[3]
Sindi, Kirimi, Impact Specialist[1]
Suárez, Víctor, Statistics Assistant
Vásquez, Zandra, Administrative Assistant

Genetic Resources Conservation and Characterization Division
Tay, David, Plant Biologist, Division Leader
Arbizu, Carlos, Andean Crops Specialist
Barrientos, Marleni, Laboratory Technician[3]
Bendezú, Néstor, Field/Greenhouse Auxiliary
Callañaupa, Julio, Greenhouse Auxiliary[3]
Cárdenas, José, Laboratory Technician[3]
Carrillo, Oscar, Research Technician
Chávez, Oswaldo, Systems Assistant
Cruzado, Juan, Research Technician
Falcón, Rosario, Biologist, Intermediate Research
Fernández, Juan, Laboratory Technician[3]
Fuentes, Segundo, Plant Pathologist, Research Associate
García, Luis, Greenhouse Auxiliary[3]
García, Wendy, Laboratory Technician[3]
Gaspar, Oswaldo, Field/Greenhouse Auxiliary
Gómez, Rene, Agronomist, Intermediate Researcher
Gonzales, Roberto, Research Technician
Javier, Miguel, Research Thecnician[3]
Lara, Raúl, Greenhouse Auxiliary
Manrique, Iván, Biologist, Intermediate Researcher
Martín, Mariana, Administrative Assistant
Panta, Ana, Biologist, Intermediate Researcher
Ramírez, Carlos, Laboratory Technician
Robles, Olegario, Research Technician[3]
Robles, Ronald, Research Assistant[3]
Rodríguez, Wilder, Research Technician
Rojas, Edwin, Systems Analyst
Romero, Sandra, Research Technician
Rossel, Genoveva, Intermediate Researcher
Ruíz, Mario, Research Technician
Salas, Alberto, Agronomist, Research Associate
Sánchez, Juan, Research Technician[3]
Soto, Julián, Research Assistant[3]
Torres, Pilar, Laboratory Technician[3]
Vargas, Fanny, Agronomist, Intermediate Researcher
Villagaray, Rosalva, Research Technician[3]
Vivanco, Francisco, Agronomist, Research Assistant
Ynga, Alberto, Research Technician[3]
Zea, Brenda, Research Assistant[3]

Germplasm Enhancement and Crop Improvement Division
Bonierbale, Merideth, Senior Potato Breeder, Division Leader
Agili, Sammy, Breeder, Research Assistant
Amorós, Walter, Agronomist, Research Associate
Andrade, Maria, Sweetpotato Breeder and Seed Systems Specialist[3] (Mozambique)
Attaluri, Sreekanth, Sweetpotato Scientist, Liaison Scientist (Bubaneshwar, India)
Alfaro, Delio, Greenhouse Auxiliary
Aliaga, Vilma, Greenhouse Auxiliary[3]
Alva, Eduar, Greenhouse Auxiliary
Aponte, Maruja, Research Technician[3]
Barzola, Alexander, Laboratory Technician[2]
Baca, Helga, Greenhouse Auxiliary[3]
Blanco, Mónica, Administrative Assistant
Bastos, Carolina, Research Assistant[3]
Beltrán, Arnaldo, Research Technician
Burgos, Gabriela, Biologist, Intermediate Research[3]
Cabello, Rolando, Agronomist, Intermediate Researcher
Carpio, Rossemary, Research Assistant[3]
Carhuapoma, Pablo, Statistician, Research Assistant
Castillón, Maromeo, Field Laborer

Carli, Carlo, Regional Seed Production Specialist, Liaison Scientist (Uzbekistan)
Cayhualla, Edith, Research Technician[1,3]
Chujoy, Enrique, Geneticist, Head of Acquisitions and Distribution Unit[2]
Cruzado, Regina, Research Assistant[1,2,3]
De la Torre, Idelfonso, Field/Greenhouse Auxiliary
Del Villar, Faviola, Research Technician
De Haan, Stefan, Potato Breeder[3]
Diaz, Federico, Research Assistant[1,3]
Diaz, Luis, Agronomist, Intermediate Researcher
Erquinio, Efraín, Field/Greenhouse Auxiliary
Espinoza, Jorge, Agronomist, Intermediate Researcher[2]
Eusebio, Domingo, Laboratory Technician[2]
Eyzaguirre, Raúl, Statistician, Research Assistant[1]
Falcón, Rosario, Biologist, Intermediate Research
Fernández, Máximo, Research Technician
Fernández, Luciano, Research Technician
Frisancho, Julio, Research Technician[1,3]
Gamarra, Freddy, Agronomist, Research Assistant[2,3]
García, Paulo, Research Technician
Gastelo, Manuel, Agronomist, Intermediate Researcher
Ghislain, Marc, Head Applied Biotechnology Laboratory
Gómez, Félix, Research Technician
Gómez, Walter, Research Technician
Grande, Enrique, Research Technician
Gruneberg, Wolfgang, Sweetpotato Breeder Geneticist
Gutiérrez, Luis, Research Technician
Gutiérrez, Raymundo, Research Assistant[3]
Heider, Bettina, Germplasm Curator[1]
Herrera, Rosario, Biologist, Intermediate Researcher
Huaccachi, Juan, Resesarch Technician
Huamani, Kelvin, Research Assistant[3]
Jeon, Ching-Cheol, Visiting Scientist[1]
Kadian, Mohinder, Agronomist (India)
Kapinga, Regina, Sweetpotato Breeder,Program Coordinator (Uganda)[2]
Kreuze, Jan, Molecular Virologist[3]
Landeo, Juan, Potato Breeder (Kenya)
Lajo, Gabriela, Research Assistan[2,3]
Lara, Raúl, Greenhouse Auxiliary
Llacta, Eusebio, Field Laborer
Loayza, Wilder, Greenhouse Auxiliary
Manrique, Sandra, Ph.D. Biologist, Intermediate Researcher
Martínez, Roberto, Greenhouse Auxiliary
Mihovilovich, Elisa, Biologist, Intermediate Researcher
Munive, Susan, Research Technician[3]
Murrieta, Raquel, Secretary
Muñoa, Lupita, Research Technician[3]
Orbegozo, Jeanette, Research Assistant[3]
Ordoñez, Benny, Research Technician[3]
Ormachea, Milagros, Research Assistant[3]
Orrillo, Matilde, Biologist, Intermediate Researcher
Plasencia, Franklin, Research Assistant[2,3]
Paredes, Joel, Research Technician[3]
Park, Young-Eun, Potato Breeder, Visiting Scientist[2,3]
Patilla, Julio, Greenhouse Auxiliary
Prentice, Katterine, Research Assistant[3]
Ponce, Miguel, Greenhouse Auxiliary[2,3]
Portal, Leticia, Biologist, Research Assistant
Porras, Eduardo, Research Technician[3]
Pozo, Víctor, Research Technician
Quispe, Héctor, Research Technician
Ramos, Martín, Research Technician[1]
Ramos, Shamir, Laboratory Technician[3]
Reyes, Eddy, Research Technician
Rivera, Cristina, Biologist, Research Assistant[3]
Rodríguez, Daniel, Greenhouse Auxiliary[3]
Rodríguez, José, Research Technician
Rojas, Percy, Biologist, Research Assistant[2,3]
Roman, Maria Lupe, Research Assistant[3]
Romero, Elisa, Agronomist, Research Assistant[2,3]
Salas, Elisa, Agronomist, Research Assistant[3]
Salazar, Rosa, Secretary
Salcedo, Carlos, Greenhouse Auxiliary[3]
Sánchez, Jacqueline, Research Technician[3]
Schafleitner, Roland, Biotechnology Research Scientist[3]
Setiawan, Asep, Sweetpotato Breeder (CIP-ESEAP)
Sosa, Paola, Research Technician[3]
Sumi, Ada, Research Assistant[1,2]
Tincopa, Rosalina, Research Assistant[2,3]
Tovar, José, Biologist, Research Assistant[3]
Trebejo, Sunny, Office Auxiliary[2,3]
Tumwegamire, Silver, Breeder, Research Assistant, Liaison Office Uganda
Untiveros, Milton, Biologist, Research Assistant[1,3]
Vega, Jorge, Greenhouse Auxiliary
Vélez, José, Field/Greenhouse Auxiliary
Wang, Fengyi, Potato Production Specialist, DPRK Project Coordinator (China)[2]
Xie, Kaiyun, Liaison Scientist (China)
Zum Felde, Thomas, Plant Breeder/NIRS Specialist[1]

Integrated Crop Management Division,

Ortiz, Oscar, Agricultural Extension & Rural Development Specialist, Division Leader
Alcazar, Jesús, Agronomist, Research Associate
Aley, Pedro, Plant Pathologist, Intermediate Researcher
Alfaro, Armando, Research Assistant[2,3]
Alvarado, Javier, Research Assistant[2,3]
Arellano, Jaime, Research Technician
Barker, Ian, Senior Virologist - CIP-Nairobi (Since July 2009)
Burgos, Angie, Research Assistant[2,3]
Calvo, Pamela, Research Assistant[3,2]
Cañedo, Verónica, Biologist, Research Assistant
Chávez, Daniel, Research Assistant[2,3]
Chuquillanqui, Carlos, Agronomist, Intermediate Research
Córdova, Manuel, Intermediate Researcher
Cuellar, Wilmer, Post-Doctoral Fellow[3]
De la Torre, Elvin, Laboratory Technician
Demo, Paul, Regional Potato Expert[3]
Erquinio, Jhojan, Greenhouse Auxiliary[3]
Espinoza, Angel, Field Laborer
Espinoza, Hugo, Research Technician
Ezeta, Fernando, Agronomist, CIP-ESEAP Regional Leader
Flores, Betty, Research Technician[3]
Forbes, Gregory, Pathologist
French, Edward, Scientist Emeritus
Fuentes, Segundo, Plant Pathologist, Research Assistant
Gamarra, Heidy, Research Assistant[3]
Gamboa, Soledad, Biologist, Research Assistant
García, Gregory, Research Assistan[2,3]
Girish, Basavapatna Halappa, Potato Scientist
Gonzales, Manuel, Laboratory Technician
Gutarra, Liliam, Agronomist, Intermediate Researcher
Huamán, Eva, Research Technician

Kadian, Mohinder Singh, Agronomist (India)
Kakuhenzire, Rogers, Regional Potato Research Fellow (Uganda)
Kowalski, Britta, Potato Agronomist, Proyect Leader[3] (Angola)
Kroschel, Jurgen, Entomologist
Lemaga, Berga, Potato Agronomist (Uganda)
McEwan, Margaret, Research Leader on OFSP Technology Transfer Dissemantion[3] (Kenya)
Mendoza, Carlos, Research Technician
Meza, Marco, Research Technician
Mujica, Norma, Agronomist, Intermediate Researcher
Muller, Giovanna, Biologist, Intermediate Researcher
Ochoa, Francisco, Research Technician
Orrego, Ricardo, Agronomist, Intermediate Researcher
Oswald, Andreas, Integrated Crop Management Expert[4]
Paredes, Catalina, Research Technician
Pérez, Wilmer, Plant Pathologist, Intermediate Researcher
Picho, Claudia, Research Assitant[3]
Ponce, Luciano, Field,Greenhouse Auxiliary
Prudencio, Maria Cecilia, Research Assistant[2,3]
Quispe, Gian Research Technician[1,3]
Sánchez, Juan, Research Technician[3]
Santivañez, Sonia, Secretary
Schulte-Geldermann, Elmar, ICP Specialist
Sierralta, Alexander, Laboratory Technician
Sofiari, Eri, Plant Breeder, Regional Scientist
Sporleder, Marc, Entomologist, ICM Specialist[4]
Taipe, Jaime, Research Assistant
Tenorio, Jorge, Biologist, Intermediate Researcher
Trebejo, Marcelo, Research Technician
Trillo, Antonio, Research Technician
Vega, Adan, Research Technician
Ventura, Fredy, Laboratory Technician
Vinueza, Marcelo, Research Technician
Zamudio, Julia, Administrative Assistant
Zegarra, Octavio, Biologist, Research Assistant

Production Systems and the Environment Division, **Quiroz, Roberto, Land Use Systems Specialist, Division Leader**

Alarcón, Nikolai, Greenhouse Technician[3]
Barreda, Carolina, Agronomist, Research Assistant
Bazoalto, Jimena, Research Assistant[2]
Claessens, Lieven, Soil Scientist[3] (Kenya)
Cruz, Mariana, Research Assistant[3]
García, Alberto, Photographic Design Technician[2,3]
Gávilan, Carla, Research Assistant[3]
Guerrero, José, Systems Assistant[3]
Heidinger, Haline, Research Assistant[3]
León-Velarde, Carlos, Agricultural Systems Analysis Specialist[3]
Loayza, Hildo, Research Assistant[3]
Posadas, Adolfo, Physicist, Research Associate, Liaison Officer Brazil[3]
Raymundo, Ruby, Programmer[3]
Sietz, Diana, Associate Expert, ICM Environmental Vulnerability Evaluation[2,4]
Silva, Luis, Database Technician[3]
Valdizán, Ivonne, Administrative Assistant
Yarlequé, Christian, Research Assistant[3]
Zorogastúa, Percy, Agronomist, Intermediate Researcher

ALTAGRO Project

Lanatta, Amalia, Administrative Assistant[3]
Mares, Víctor, Productions Systems Agronomist[3]
Valdivia, Roberto, Coordinator Altagro-Puno[3]

Agriculture and Human Health Division, **Cole, Donald, Epidemiologist, Division Leader**

Loechl, Cornelia, Nutritionist[3]
Pradel, Willy, Zoologist, Intermediate Researcher[3]

Capacity & Strengthening, **Nelles, Wayne, Head**

Echeandía, Edda, Multimedia Developer
Puccini, Alfredo, Multimedia Designer
Suito, Mercedes, Administrative Assistant

Library, **Ferreyra, Cecilia, Head Librarian**

García, Daniel, Library Auxiliary
Hoyos, Alexis, Library Auxiliary
Lay, Griselda, Library Assistant

Field Research Support

Otazú, Victor, Experimental Stations Superintendent
Alburqueque, Juan, Field Laborer
Ayquipa, Agustin, Driver
Barrientos, Herminio, Gardener
Blas, Walter, Mechanic
Callañupa, Francisco, Field Laborer
Cancho, José, Field Laborer[2]
Cardozo, Reymundo, Field Laborer
Cipriano, Jorge, Field Laborer
Colachagua, Eloy, Field Laborer
Cosme, Anastacio, Driver (Tractor)
Coz, Armando, Driver
Cristobal, Juan, Field Laborer
Domínguez, Augusto, Field Laborer
Duarte, Roberto, Agronomist, Field/Greenhouse Supervisor
Falcón, José, Cooking Attendant
Flores, Julián, Office Auxiliary
Frisancho, Rebeca, Agronomist, Field/Greenhouse Supervisor
Gaspar, Demetrio, Field Laborer
Gaspar, Henry, Cooking Attendant
Huarcaya, Alberto, Field Laborer
Lara, Carmen, Secretary
Limaylla, Jenny, Administrative Assistant
López, Serapio, Field Laborer
Maguiña, Sergio, Field Laborer
Marín, Fernando, Maintenance Technician
Mena, Víctor, Greenhouse/Field Laborer
Merma, Luis, Greenhouse/Field Laborer
Montes, Marco, Field Laborer
Noa, Fernando, Field Laborer
Olmedo, José, Driver (tractor)
Piana, Vanna, Administrative Assistant
Porras, Jorge, Warehouse Assistant
Quino, Miguel, Research Technician
Quispe, Julio, Field Laborer[2]
Reyes, Eddy, Gardener
Romero, Emeterio, Field/Greenhouse Auxiliary
Suárez, Julio, Field Laborer
Vega, Ricardo, Field/Greenhouse Auxiliary

Velasco, Diogardo, Field/Greenhouse Auxiliary
Zamora, Marco, Field Laborer

Research Informatics Unit, Simon, Reinhard, Head
Aliaga, Christian, Systems Assistant[3]
De Mendiburu, Felipe, Statistician, Research Assistant
Gonzales, Juan Carlos, Systems Assistant[3]
Juárez, Henry, Agronomist, Intermediate Researcher
Rojas, Edwin, Systems Analyst
Rojas, Luis, Systems Assistant[3]
Vargas, María Elena, Research Assistant[3]

3. Partnership

Programs VITAA, Mwanga Robert, Sweetpotato Breeder[1]
Kapinga, Regina, Sweetpotato Breeder, Program Coordinator (Kampala)[2]
Tumwegamire, Silver, Breeder, Research Assistant

Papa Andina, Devaux, André, Agronomist, Program Coordinator[3]
Andrade, Jorge, Coordinator, InnovAndes Project[3]
Antezana, Ivonne, Economist, Regional Scientist[3]
Egúsquiza, Rolando, Consultant
Calle, Carmen, Information Assistant[1,3]
López, Gastón, Consultant[3]
Manrique, Kurt, Agronomist, Intermediate Researcher
Ordinola, Miguel, Consultant[3]
Thomann, Alice, Associate Expert[3]
Vela, Ana María, Administrative Assistant[3]
Velasco, Claudio, Coordinator of Papa Andina in Bolivia

UPWARD
Aquino, Mylene, Administrative Officer
Gallentes, Jaime, Research Assistant[1]
Luis, Judith, Project Specialist[2]
Nadal, Marietta, Office Manager
Sister, Lorna, Project Specialist

CONDESAN, Saravia, Miguel, Program Coordinator[3]
De Bièvre, Bert, Paramo Andino Project Coordinator[3]
Briceño, Musuq, Research Assistant[2,3]
Calle, Tania, Research Assistant[3]
Castro, Augusto, Research Assistant[2,3]
Fernández, Edith, Intermediate Researcher[2,3]
Guerrero Mauricio, Consultant
Hernández, Connie, Administrative Assistant[3]
Montoya, María Paz, Project Coordinator,[3]
Sánchez, Adam, Programmer[3]
Visscher, Alejandra, Coordinator[1,2,3]

Urban Harvest, Prain, Gordon, Social Anthropologist, Program Coordinator
Gonzales, Nieves, Research Assistant[2,3]
Karanja, Nancy, Regional Coordinator (CIP-SSA)
Lwasa, Shuaib, Project Leader, Focus Cities[3] (Uganda)
Njenga, Mary, Research Officer[2]
Pacheco, Rossana, Research Assistant[3]
Muñoz, Ana Luisa, Administrative Assistant

4. Regional Offices

Liaison Office, Quito, Ecuador, De Bièvre, Bert, Liaison Officer, Paramo Andino Project Coordinator[3]
Alcocer, Julio, Field Laborer
Ayala, Sofia, Administrative Assistant
Barona,Dario, Field/Greenhouse Supervisor[1]
Brusil, Ramiro, Guard[2]
Burbano, Rosa, Accountant
Camacho, Milton, Field Laborer[1]
Cuesta, Francisco, Consultant
Guerrero Mauricio, Consultant
Jiménez, José, Network Management and Systems Maintenance
Mera, Xavier, Research Assistant
Oña, Marlene, Administrative Assistant
Pérez, Cecilia, Research Assistant[2]
Reinoso, Lidia, Field and Greenhouse Laborer
Rodriguez, Sandra, Research Assistant[1]
Taipe, Jaime, Research Assistance
Vinuesa, Marcelo, Research Technician
Yanza, Pablo, Field Laborer

Sub-Saharan Africa (SSA), Nairobi, Kenya, Low, Jan, Economist, Regional Leader
Agili, Sammy, Breeder, Research Assistant
Borus, Dinah, Research Assistant
Claessens, Lieven, Soil Scientist[3] (Kenya)
Gati, Jean Maurine, Scientific Assistant[1]
Kaguongo, Wachira, Agricultural Economist,Research Assistant[3]
Kioko, Musua, Administrative Assistant
Landeo, Juan, Potato Breeder
Maina, George, Driver
McEwan, Margaret, Research Leader OFSP Technology Transfer Dissemantion[3]
Mogere, Kefa, Regional Accountant[1]
Ndoho, Emily, Accountant
Obado, Joseph, Monitoring and Evaluation Assistant
Reuben, Anangwe, Cleaner
Wamalwa, Lydiaa, Research Assistant[1,3]
Zani, Naomi, Administrative Assistant

Liaison Office, Kampala, Uganda, Esi Amouaful, VITTA Program Coordinator[2,3]
Atong, Moses, Office Messenger
Ameu, Martin, Research Assistant
Kakuhenzire, Rogers, Regional Potato Research Fellow
Lemaga, Berga, Potato Agronomist
Loechl, Cornelia, Nutritionist[3]
Lwamata, James, Security Guard
Lwasa, Shuaib, Project Leader, Focus Cities[2,3]
Namanda, Sam, Agronomist, Research Assistant[3]
Nyamutale Placid, Research Assistant[3]
Tumwirize, Ronald, Driver, Purchasing Assistant
Tumwegamire, Silver, Breeder, Research Assistant
Ameru, Martha, Secretary
Nsumba, James, Agronomist, G Program Assistant[2,3]
Wakulira, N. Rachel, Accountant
Migisa, Isaac, Driver

Liaison Office, Lilongwe, Malawi, Demo, Paul, Regional Potato Expert[3]
Ndiwa, Godknows, Administrative Assistan
Sopo, Owen, Marketing Officer[1]
Chimwala Lucius, Research Assistant[1]
Chidobvu, John, Field Technical Assistant[1]
Chifundo, Banda, Technical Assistant[1]
Kazembe, John, Field Technical Officer
Ndovi, John, Driver/Field/Office Assistant[1]

Liaison Office, Maputo, Mozambique, Andrade, Maria, Sweetpotato Breeder and Seed Systems Specialist[3]
Alvaro, Abilio dos Santos, Agronomist, Research Assistant[3]
Armando, Lourenco, Driver[3]
Buanar, Asha, Accoutant[1]
Chiconela, Luisa, Greenhouse worker[3]
Chivambo, Benildo, Field auxiliary[1,3]
Daude, Aissa, Administrative Asssistant[1,2]
Faria, Maria de Lourdes, Assistant Nutritionist[3]
Jorge, Fernandes J., Technician[3]
Mauariha, José Albino, Driver, Gaza[3]
Munguambe, Chelza, Greenhouse worker[3]
Naico, Albino, Research Technician[1]
Ricardo, José, Technical Assistant[1,3]
Ruco, Amelia Ozias, Accountant and Administrator
Venancio, Felismino, Agronomist, Research Assistant (Based in Angonia)[3]
Vura, Alberto, Technician[2,3]
Guambe, Abrahamo Alberto (gardener)[3]

Office, Quelimane, Mozambique
Labarta, Ricardo, Post Doctoral Agricultura Economist[3]
Devunane, Jose, Driver[3]
Godinho, Nelson, Field Enumerator and Data Entry[2,3]
Mabui, Arlindo, Research Technician[1]
Manteiga, Iranett Almeida, Field Enumerator and Data Entry[2,3]
Moniz, Jesualdo, Research Assistant[1]
Mugumhe, Moniz, Driver[1]
Munhaua, Bernardinho Azevedo, Data Entry Manager and Administrator[3]
Murina, Bernardo, Cleaner & Messenger[3]
Mussuale, Momade Cesar, Field Supervisor[2,3]
Pedro, Gomes Federico, Field Enumerator and Data Entry[2,3]
Serra, Victor Luis, Field Enumerator and Data Entry[2,3]
Sitoe, Elias, Research Assistant[1]

Liaison Office, Angola
Andrade, Paulo, Finance Analyst
Fernández, Flavio, Accountant Assistant[1]

Liaision Office, Huambo, Angola,
BK-Chevron-Angola Vegetatively Propagated Crops
Kowalski, Britta, Potato Agronomist, Proyect Leader[3]

Liaison Office, Ethiopia
Andarsa, Daniel, Driver[1]

South, West and Central Asia(SWCA), New Delhi, India, Campilan, Dindo, Sociologist, Regional Leader
Anjan, Barik, Office Driver
Arya, Sushma, Accountant/Program Coordinator
Bharti, Ashok, Administrative Officer[1]
Dasappan Jayakumar, Computer Assistant
Girish, Basavapatna Halappa, Potato Scientist[2]
Jagram, Office Assistant
Kadian, Mohinder Singh, Agronomist
Kumar, Raj Barun, Administrative Assistant[1]
Kumar, Vinod, Driver
Mony, Lalitha, Administrative Secretary[2]
Rahaman, Ebna, Research Assistant
Same, Jaka Kumar, Computer operator[2]
Shahid, Ali, Research Assistant
Sharma, Neeraj, Research Assistant
Surjit, Vikraman, Associate Scientist[1]
Verma, Romi, Program Associate[2]
Viwheto, Thorie, Research Assistant

Liaison Office, Bhubaneswar, India, Attaluri, Sreekanth, Sweetpotato Scientist, Liaison Scientist-BBSR, India
Office, Kathmandu, Nepal
Sporleder, Marc, Entomologist, ICM Specialist[4]

Liaison Office, Tashkent, Uzbekistan, Carli, Carlo, Regional Seed Production Specialist, Liaison Scientist
Muzaffar, Aliev, Administrative Officer
Ibragimov, Zokhid, Marketing Specialist
Khalikov, Durbek, Agronomist Assistant
Khegay, Eduard, Office Driver
Kim, Galina, Secretary
Kuchkarova, Minavar, Office Attendant
Yugay, Tamara, Accountant
Yuldashev, Firuz, Research Assistant

East and Southeast Asia and the Pacific (ESEAP) Lembang, Indonesia, Ezeta, Fernando, Agronomist, Regional Leader
Budhi, Prasetya, Program Officer,
Kosay, Luther, Research Assistant[3]
Mahalaya, Sukendra, Researcher
Nawawi, Kusye, Accountant
Satiman, Partono, Office Driver
Sofiari, Eri, Plant Breeder, Regional Scientist
Syahputra, Aris, Research Assistant
Tjintokohadi, Koko, Research Assistant
Yuniarti, Fihartini, Secretary Executive[2]

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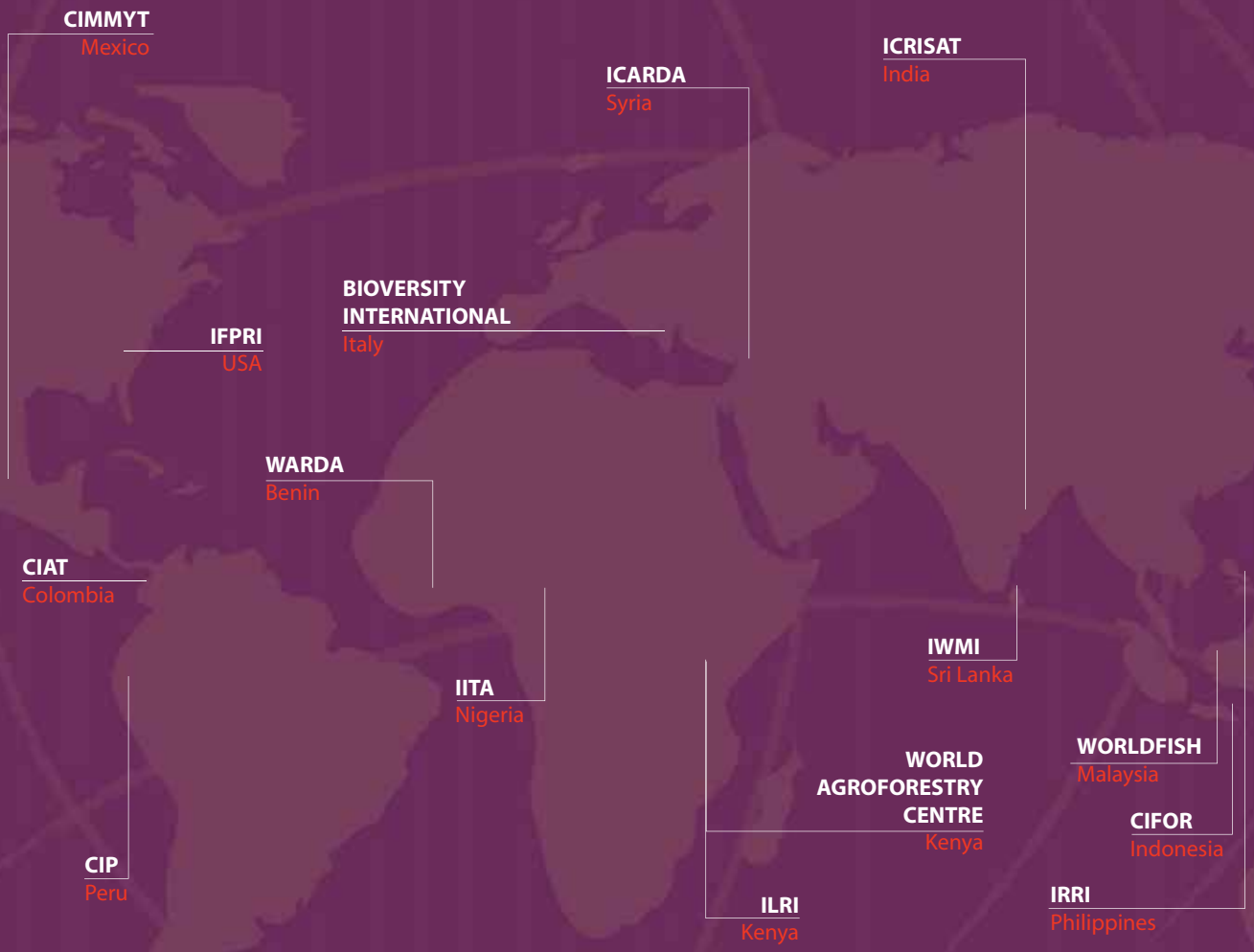
Gu, Jianmiao, Administrative Assistant
Shi-an, Liu, Office Assistant and Driver
Wang, Fengyi, Potato Production Specialist, DPRK Project Coordinator[3]
Wang, Xiao-Xue, Research Assistant

Liaison Office, Hanoi, Vietnam, Nguyen, Thi-Tinh, Animal Scientist, Liaison Scientist
Nguyen, Thia Hoa, Cleaner
Huy Chien Dao, Project Coordinator[1]
Le van Huyen, Research Assistan

CGIAR centers



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In 2009, the CGIAR began to undertake a major change initiative, creating a new business model that includes a new Consortium of CGIAR Centers, along with a CGIAR Fund of donors designed to harmonize and increase their funding while engendering greater financial stability for the system. The new strategic objectives of the CGIAR include: food for people, environment for people, and policies for people.

	Bioversity International
CIAT	**C**entro Internacional de Agricultura Tropical
CIFOR	**C**enter for International Forestry Research
CIMMYT	**C**entro Internacional de Mejoramiento de Maíz y Trigo
CIP	**C**entro Internacional de la Papa
ICARDA	**I**nternational Center for Agricultural Research in the Dry Areas
ICRISAT	**I**nternational Crops Research Institute for the Semi-Arid Tropics
IFPRI	**I**nternational Food Policy Research Institute
IITA	**I**nternational Institute of Tropical Agriculture
ILRI	**I**nternational Livestock Research Institute
IRRI	**I**nternational Rice Research Institute
IWMI	**I**nternational Water Management Institute
WARDA	**W**est Africa Rice Development Association
	World Agroforestry Centre
	WorldFish

International Potato Center

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